

## FROM PROTO-TIBETO-BURMAN TO PROTO-AO: INITIAL DEVELOPMENTS\*

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## 1. INTRODUCTION

### 1.1. Purpose

The paper presents a reconstruction of the phonemic inventory and lexicon of Proto-Ao, the hypothetical ancestor of the Tibeto-Burman languages Mongsen Ao and Chungli Ao, spoken in the Mokokchung district of Nagaland state in northeast India. The analysis here focuses specifically on initial consonants and examines their historical development from Proto-Tibeto-Burman through Proto-Ao to Mongsen and Chungli, the two primary daughter languages of PAo.

Ao data for the comparative method was drawn from Coupe 2003, Coupe 2007 ('GMA'), Tamsunungsang 2009, Clark 1911, a UC Berkeley Field Methods course on Chungli (2008-2009), and my own consultant work (2009-present). The Mongsen data comes largely from the variety spoken in Mangmetong village (documented in GMA), while the Chungli

data conforms to ‘standard Chungli’ (=the Molung variety) as depicted in Clark 1911. PTB teleo-reconstructions are taken from Benedict 1972 (‘STC’), Matisoff 2003 (‘HPTB’), Matisoff 2008, and the STEDT database,<sup>1</sup> except where noted.

Chungli, Mongsen, and PAo forms are transcribed according to the IPA,<sup>2</sup> except for the use of a preceding *h* to designate voiceless sonorants (e.g. **hn** [ɲ], **hw** [ɰ], **hl** [ɰ̥]) and a non-superscript following *h* to represent aspiration (e.g. **ph** [p<sup>h</sup>], **tsh** [ts<sup>h</sup>]). Tones in Mongsen forms are represented by accents over the vowel nuclei (acute = H, unmarked = M, grave = L), while Chungli tones are indicated by superscript numbers following each syllable (3 = H, 2 = M, 1 = L). (The tone system of Proto-Ao has not yet been reconstructed.) Diphthongal offglides are transcribed with the glides **w** and **j** in Mongsen, but **u** and **i** in Chungli (e.g. Mongsen **səj**, Chungli **səi**<sup>31</sup> ‘pass’).

PAo prefixes, vocalized with a weak schwa that sporadically assimilates to the root vowel (cf. GMA: 53), are represented in the reconstructions as a consonant separated from the root by a dash (e.g. PAo \***t-ɹət** BONE, \***m-jəm** LOVE). PTB roots conform to the transcription system described in HPTB (xxxvii-xxxviii).<sup>3</sup>

§1.2 discusses important theoretical issues in reconstructing PAo, and §2 presents the results of the reconstruction: The full inventory of PAo initials is found in §2.1, oral stops in §2.2, sibilant fricatives in §2.3, affricates in §2.4, nasals in §2.5, glides and liquids in §2.6, laryngeals in §2.7, and consonant clusters in §2.8. The paper is then concluded in §3. The Appendix (following the References) summarizes the PTB > PAo and PAo > Mongsen/Chungli sound changes established.

## 1.2. Issues in Reconstruction

A significant factor in reconstructing any proto-language is the phonemic analysis one adopts for its daughter languages. In both Mongsen and Chungli, the consonants [s] and [ʃ] appear in complementary distribution, suggesting an analysis in which the phoneme /s/ surfaces as [ʃ] before the high front vowel /i/ but elsewhere as [s]. Comparing Mongsen and Chungli cognates with initial /s/ yields two correspondence sets, however, namely **sa** : **sa** and **sa** : **si** [ʃi]. These correspondences are best explained by positing separate /s/ and /ʃ/ phonemes in Proto-Ao and reconstructing \***sa** for the first set but \***ʃa** for the second (which became Mongsen **sa** but ‘brightened’ the vowel in Chungli to become **si** [ʃi]). Thus, although PAo \***ʃ** has merged with \***s** to become a single phoneme /s/ in both daughter languages, the retention of [ʃ] in

<sup>1</sup> Unpublished reconstructions from the STEDT database are flagged with a following superscript dagger ( † ).

<sup>2</sup> Where consultant data is currently unavailable, some Chungli forms from Clark 1911 appear in the cognate sets below. These forms are provided in both the Clark orthography (in FULL CAPS) and my IPA interpretation of Clark’s transcription (minus tones and the glottal stop), based on the Chungli phonemic inventory.

<sup>3</sup> Note, for example, that the sequence PTB \***tsy-** represents [tʃ], not something like [tsj].

Chungli as an allophone of /s/ serves as a clue that /s/ and /ʃ/ may have been separate phonemes at one time in the history of the language. (This is discussed in further detail in §2.3.1.)

Another complex issue in Ao is the treatment of prefixes, particularly the ubiquitous and puzzling Chungli verbal **a-** prefix. In Chungli, many verbs that begin with /a/ lose their initial vowel in certain morphological contexts, a phenomenon that is best analyzed by positing a class of verbs bearing an **a-** prefix (*A-stem* verbs). The Mongsen cognates of these Chungli A-stem verbs overwhelmingly lack an initial **a-** (with only two exceptions<sup>4</sup>), e.g. Chungli **a<sup>2</sup>-tən<sup>2</sup>** but Mongsen **tən** ‘sing’. Tamsunungsang chooses to analyze this phenomenon synchronically, hypothesizing that certain Chungli verbs (‘bound forms’) undergo ‘vowel augmentation’ to satisfy a verbal disyllabic minimality constraint that Mongsen lacks (2009: §3.5). Alternatively, it is possible that this **a-** prefix existed on many verbs at the Proto-Ao stage and was completely lost in Mongsen but retained in Chungli. Since the topic of this paper is the reconstruction of initial consonants, however, the **a-** prefix question will be left open for now, and any reconstructions of a PAo \***a-** verbal prefix will be enclosed in parentheses where its existence is uncertain.

It is important to note that the Chungli verbal **a-** prefix should not be confused with another **a-** prefix that appears on certain Mongsen nouns. Tamsunungsang again analyzes this as a case of vowel augmentation, this time to satisfy a disyllabic minimality constraint on nouns in Mongsen (2009: 72-74). Coupe, on the other hand, simply labels **a-** as a ‘non-relational prefix’ and notes that the nouns on which it appears are predominantly cultural artifacts and natural objects (GMA: 248). The Chungli cognates of Mongsen **a-**prefixed nouns either have an **a-** that is always part of the word (e.g. Chungli **a<sup>3</sup>ŋu<sup>2</sup>**<sup>1</sup> : Mongsen [**a**]-**hŋá?** ‘fish’), or they lack the prefix entirely (e.g. Chungli **səŋ<sup>1</sup>** : Mongsen [**a**]-**səŋ** ‘wood’). With respect to Proto-Ao reconstructions in this paper, the PAo \***a-** noun prefix will be unambiguously reconstructed in the former cases but enclosed in parentheses in the latter.

Reconstruction of Proto-Ao is also somewhat complicated by the sociolinguistic situation in the Mokokchung district of Nagaland, where contact between Chungli and Mongsen has occurred for centuries. As evident from the map of ‘Ao country’ in GMA (p. xxiii), Chungli and Mongsen villages are not separated into well-defined, distinct areas, and some villages even consist of two wards: one Chungli-speaking and the other Mongsen-speaking. In addition, the Ao territory is surrounded by speakers of several other TB languages (cf. GMA: xxii). With such prolonged & intense language contact, the existence of borrowing is unquestionable. Identifying which forms have been borrowed, however, is another matter, and involves evaluating each potential loan with respect to its semantic category, phonotactic characteristics, and

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<sup>4</sup> Chungli **a<sup>2</sup>-nək<sup>2</sup>** : Mongsen **anik** ‘be tender, soft’; Chungli **a<sup>2</sup>-pak<sup>2</sup>** : Mongsen **apak** ‘be flat’

potential donor language. As more research is conducted on the language contact situation in Nagaland, this task will become easier.

## 2. RECONSTRUCTED PROTO-AO INITIALS

### 2.1. Proto-Ao Phonemes

The following table presents the inventory of initial consonants in Chungli.<sup>5</sup>

	<i>Bilabial</i>	<i>Dental/Alveolar</i>	<i>Palatal/Pal-Alv.</i>	<i>Velar</i>	<i>Glottal</i>
<i>Nasal stops</i>	m	n		ŋ	
<i>Oral stops</i>	p	t		k	
<i>Affricates</i>		[ts]	tʃ		
<i>Fricatives</i>		s, z			(h)
<i>Approximants</i>	w	l	ɹ	j	

Table 1: Chungli initial consonants

The voiceless glottal fricative /h/ has a very limited distribution, only appearing in words like **hau?**<sup>1</sup> ‘yes’, **hai?**<sup>1</sup> ‘okay’, **ha<sup>3</sup>tʃi<sup>1</sup>** ‘sneezed’, and in some loanwords.

The voiceless fricative /s/ is produced as [s], except where it undergoes palatalization to [ʃ] before the high front vowel /i/, e.g. /si<sup>2</sup>/ → [ʃi<sup>2</sup>] ‘meat’.

For the status of [ts] in Chungli (which appears to be an allophone of /tʃ/), see the discussion in §2.4.

Table 2 contains the inventory of Mangmetong Mongsen initial consonants, taken from GMA (his Table 2.2 on p. 28):

<sup>5</sup> A detailed acoustic/articulatory study has not yet been conducted to determine the exact places of articulation for such Chungli phonemes as /ɹ/.

	<i>Bilabial</i>	<i>Dental</i>	<i>Post-alveolar</i>	<i>Palatal/Pal-Alv.</i>	<i>Velar</i>	<i>Glottal</i>
<i>Nasal stops</i>	m hm	n hn			ŋ hŋ	
<i>Oral stops</i>	p ph	t th			k kh	
<i>Affricates</i>		ts tsh		tʃ tʃh		
<i>Fricatives</i>		s z				h
<i>Laterals</i>		l hl				
<i>Approximants</i>	w hw		ɹ hɹ	j hj		

Table 2: Mongsen initial consonants

The aspirated bilabial stop /p<sup>h</sup>/ exhibits the free variants [p<sup>h</sup>] and [p̚] in the speech of some Mongsen speakers. In addition, both /s/ and /z/ undergo palatalization to [ʃ] and [ʒ] before /i/. For some speakers, [z] and [ʒ] are in free variation before the high front vowel, while others preserve [z] in all environments (GMA: 30-31).

Coupe also states that /ɹ/ (voiced apical post-alveolar approximant) “is often realized as a sub-laminal retroflex approximant [ɹ̠], particularly before a non-front vowel” (GMA: 38), and notes at least one instance in which it was produced as a retroflex fricative [ɹ̠] (GMA: 43).

Finally, the full inventory of Proto-Ao initial consonants is presented below in Table 3, which minimally differs from the Mangmetong Mongsen inventory in its inclusion of post-alveolar fricatives and palatal stops:

	<i>Bilabial</i>	<i>Dental/Alveolar</i>	<i>Post-alveolar</i>	<i>Palatal/Pal-Alv.</i>	<i>Velar</i>	<i>Glottal</i>
<i>Nasal stops</i>	m hm	n hn			ŋ hŋ	
<i>Oral stops</i>	p ph	t th		c (?) ch (?)	k kh	
<i>Affricates</i>		ts tsh		tʃ tʃh		
<i>Fricatives</i>		s z	ʃ ʒ			h
<i>Laterals</i>		l hl				
<i>Approximants</i>	w hw		ɹ hɹ	j hj		

Table 3: Proto-Ao initial consonants

## 2.2. Oral Stops

This section reconstructs the Proto-Ao aspirated and unaspirated oral stops: \***p(h)**-, \***t(h)**-, and \***k(h)**-.

### 2.2.1. PAo \***p(h)**-

The Chungli voiceless unaspirated bilabial stop **p-** corresponds to both Mongsen aspirated **ph-** and unaspirated **p-**. The appearance of aspirated **ph-** in Mongsen does not appear to have been conditioned by any environment, justifying the reconstruction of both \***ph-** and \***p-** at the Proto-Ao level, which have merged in Chungli.

*Mongsen p-*, *Chungli p-* < PAo \**p-* < PTB \**b-*, \**p-*

Table 4 contains cognate sets supporting the reconstruction of PAo unaspirated \**p-*, which developed from a merger of PTB \**b-* with \**p-*:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(1)	apak	a <sup>2</sup> -pak <sup>2</sup>	*a- <b>pak</b>	BE FLAT	*r-pak	LEAF
(2)	[tə]-paŋ	tə <sup>2</sup> -paŋ <sup>2</sup>	*t- <b>paŋ</b>	MOUTH	*p(r)(w)aŋ	MOUTH <sup>†</sup>
(3)	məpisi	məpi-si (Clark: MEPISHI)	*m- <b>pi-si</b>	REQUEST (v.)		
(4)	pu	a <sup>2</sup> pu <sup>2</sup>	*(a-) <b>pu</b>	CARRY (SHOULDER)	*bəw	CARRY (BACK/SHOULDER) <sup>†</sup>
(5)	[tə]- <u>puk</u> ləŋ	tə <sup>2</sup> -puk <sup>2</sup>	*t- <b>puk</b>	BELLY	*pu:k	BELLY / CAVE
(6)	puŋ	a <sup>2</sup> -puŋ <sup>2</sup>	*(a-) <b>puŋ</b>	BLOOM (v.)		
(7)	pùŋì	puŋ <sup>1</sup> zə <sup>1</sup>	* <b>puŋ</b> -?	WILD PIG		
(8)	mə <u>puŋ</u>	mu <sup>2</sup> <u>puŋ</u> <sup>2</sup>	*- <b>puŋ</b>	WIND	*buŋ	WIND

Table 4: PAo \**p-*

The Ao forms for ‘wind’ in (8) may be a compound in which the first element reflects PTB \**r-məw* SKY / HEAVENS / CLOUDS.

*Mongsen ph-*, *Chungli p-* < PAo \**ph-* < PTB \**s-p-*

Table 5 contains the two cognate sets which support the reconstruction of PAo \**ph-* as a root-initial consonant. (PAo \**ph-* appears elsewhere as a prefix.)

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(9)	[tə]-phi	tə <sup>3</sup> -pi <sup>1</sup>	*t- <b>phi</b>	THIGH	*d/s-p(y)i	WAIST / LOINS <sup>†</sup>
(10)	phu	a <sup>2</sup> -pu <sup>2</sup>	*(a-) <b>phu</b>	BLOW	*pu	BLOW <sup>†</sup>

Table 5: PAo \**ph-*

PAo \***ph-** likely descended from the prefix + initial-consonant sequence of PTB \***s-p**, given that the PTB \***s-** prefix shows “a tendency to induce aspiration or glottalization of the root initial” (HPTB: 99). This development is illustrated by the set in (9) THIGH.

PTB \***pu** BLOW may also have borne an \***s-** prefix. Although is not currently reconstructed in the STEDT database with a prefix, the majority of its supporting forms contain voiceless **ph-**, such as Bijiang Bai **phu**<sup>55</sup>, Mawo Qiang **ph**<sup>h</sup>, and Prakaa Manang <sup>2</sup>**phu** <sup>3</sup>**lə-**. It is also possible, however, that the widespread aspiration on this form is onomatopoeic in nature.

Consonant clusters consisting of \***p(h)-** and \***w-** can also be reconstructed for Proto-Ao (see §2.8).

### 2.2.2. PAo \***t(h)-**

An aspiration contrast for the dental/alveolar stops is also reconstructed at the Proto-Ao level.

*Mongsen t-, Chungli t- < PAo \*t- < PTB \*d-, \*t-*

Table 6 illustrates the merger of PTB \***d-** and \***t-** to yield PAo unaspirated \***t-**, which descended unchanged in Mongsen and Chungli:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(11)	ata	a <sup>2</sup> ta <sup>2</sup>	*a-ta	AWAIT		
(12)	tàk	a <sup>2</sup> -tak <sup>2</sup>	*(a-)tak	WEAVE	*tak ≈ *dak	WEAVE
(13)	mətak	mə <sup>2</sup> tak <sup>2</sup>	*m-tak	STING		
(14)	tə-	tə <sup>1</sup> -	*tə-	PROHIBITIVE	*ta ≈ *da	PROHIBITIVE
(15)	[a]-təm	atəm (Clark: ATEM)	*a-təm	FLOOR		
(16)	tən	a <sup>2</sup> -tən <sup>2</sup>	*(a-)tən	SING		
(17)	təp	a <sup>3</sup> -təp <sup>1</sup>	*(a-)təp	STRIKE, BEAT	*tip/tup ≈ *dip/dup	BEAT / STRIKE
(18)	təp	a <sup>2</sup> -təp <sup>2</sup>	*(a-)təp	PAINT (v.)		
(19)	mətət	mə <sup>2</sup> tət <sup>2</sup>	*m-tət	KNOW		

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(20)	[tə]-ti ‘o. sibling’	tə <sup>2</sup> -ti <sup>2</sup> ‘o. brother’	*t-ti	OLDER BROTHER		
(21)	[tə]-tuŋ	tə <sup>2</sup> -tuŋ <sup>2</sup>	*t-tuŋ	STEM, TRUNK	*du:ŋ	POST / COLUMN
(22)	tù?	a <sup>3</sup> -tu? <sup>1</sup>	*(a-)tu?	DIG	*tu × *s/m-du	DIG
(23)	tù?	a <sup>3</sup> tu? <sup>1</sup>	*(a-)tu?	POKE, JAB		

Table 6: PAo \*t-

The fact that Mongsen ‘older sibling’ is cognate with Chungli ‘older brother’ in (20) suggests that the Proto-Ao form was originally OLDER BROTHER and was semantically broadened in Mongsen.

*Mongsen th-*, *Chungli t-* < PAo \**th-* < PTB ?

An aspirated \**th-* may be reconstructed for Proto-Ao, but its PTB source is obscure:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(24)	thàŋ	a <sup>3</sup> -taŋ <sup>1</sup>	*(a-)thaŋ	BLOCK, STOP UP		
(25)	thàŋ	a-taŋ (Clark: A-TANG)	*(a-)thaŋ	SEVER		
(26)	thəm	a <sup>2</sup> -təm <sup>2</sup>	*(a-)thəm	END, FINISH		
(27)	təthì	tə <sup>3</sup> ti <sup>1</sup>	*t-thi	ALWAYS		
(28)	thiɹ ‘eighty’ (tshət ‘eight’)	tiɹ <sup>31</sup> ‘eighty’ ti <sup>2</sup> ‘eight’	*thi	EIGHT	PKN *d-ryat	EIGHT <sup>6</sup>
(29)	thutsə	tu <sup>2</sup> tsə <sup>2</sup>	*thutsə	OIL		

<sup>6</sup> This reconstruction is presented in STC as belonging to the hypothesized ‘Kuki-Naga’ proto-language (STC: 45: fn.148; see also Matisoff 1995: 204), differing from the PTB form (\**b-g-ryat*) only in its prefix.

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>	<i>PTB</i>
(30)	thùŋ	a <sup>3</sup> -tuŋ <sup>1</sup>	*(a-)thùŋ	REACH, ARRIVE
(31)	thèn	a-tən (Clark: A-TEN)	*thən	SOW (v.)

Table 7: PAo \*th-

PKN \***d-ryat** EIGHT appears to have undergone two paths of development in Ao: On the one hand, the existence of Mongsen **thiɹ** ‘eighty’ and Chungli **tiɹ**<sup>31</sup> ‘eighty’ & **ti**<sup>2</sup> ‘eight’ supports the reconstruction of PAo \***thi** EIGHT (which appended a ‘decuple’ \*-ɹ suffix to yield EIGHTY). This PAo form apparently resulted from prefix preemption in PKN \***d-ryat** (cf. HPTB: 153), although the source of the aspiration on PAo \***th-** is unknown. On the other hand, Mongsen **tshət** ‘eight’ likely developed in a more straightforward manner, with the dental affricate descending from the PKN \***d-ry-** cluster. Although no Chungli cognate for Mongsen **tshət** is available,<sup>7</sup> this form must also have existed at the Proto-Ao level, requiring the uneasy assumption that two PAo words existed simultaneously for EIGHT – unless Mongsen ‘eight’ can be shown to be a loan.

### 2.2.3. PAo \*k(h)-

The last stop series consists of the Proto-Ao velars \***k-** and \***kh-**:

*Mongsen k-*, *Chungli k-* < PAo \***k-** < PTB \***k-**, \***g-**

PAo \***k-** developed from a merger of PTB \***g-** with \***k-**, as shown below in Table 8:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>	<i>PTB</i>	
(32)	ka	a <sup>3</sup> -ka <sup>1</sup>	*(a-)ka	GAPE, OPEN MOUTH	
(33)	[a]-kəm	kəm <sup>1</sup>	*(a-)kəm	YEAR	
(34)	kəm	a <sup>2</sup> -kəm <sup>2</sup>	*(a-)kəm	BECOME	
(35)	[tə]-kəp	tə <sup>2</sup> -kəp <sup>2</sup>	*t-kəp	SKIN	
				*m-ka	OPEN / MOUTH
				cf. PKC *kum	AGE / YEAR
				*gup	HATCH / COVER

<sup>7</sup> But note Yacham-Tengsa (an Ao dialect under heavy contact influence from Phom and Chang) **teset** ‘eight’ (Marrison 1967: II: 32).

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(36)	kət	a <sup>2</sup> -kət <sup>2</sup>	*(a-)kət	POSSESS		
(37)	[a]-ki	ki <sup>1</sup>	*(a-)ki	HOUSE	*k-yim	HOUSE
(38)	kìn	kin <sup>1</sup>	*kin	CLAN		
(39)	thuku	tu <sup>2</sup> ku <sup>2</sup>	*th-ku	NINE	*d/s-kəw	NINE
(40)	aku	ku <sup>2</sup>	*(a-)ku	BASKET	*kaw	BASKET
(41)	[tə]-məkuk	tə <sup>2</sup> -mu <sup>3</sup> kuk <sup>1</sup>	*t-m-kuk	KNEE	*m-ku(:)k ∅ *gu(:)k	KNEE
(42)	kùk	a <sup>2</sup> -kuk <sup>2</sup>	*(a-)kuk	WIN		
(43)	məkun	mu <sup>2</sup> kun <sup>2</sup>	*m-kun	BE COLD		
(44)	kùŋhə	kun <sup>1</sup> ə <sup>2</sup>	*kunəh	MUSHROOM		
(45)	kun	a <sup>2</sup> -kun <sup>2</sup>	*(a-)kun	BE DRY	*ka(:)ŋ	BE DRY
(46)	[tə]-kùʔ	tu <sup>3</sup> -ku <sup>ʔ</sup> <sup>1</sup>	*t-kuʔ	CHEST	*s-g/k(r)u-k/s	CHEST
(47)	kùhàŋ ‘hat’ maŋku ‘head trophy’ —	ku <sup>2</sup> ɿaŋ <sup>2</sup> ‘hat’ maŋ <sup>2</sup> ku <sup>2</sup> ‘head trophy’ tu <sup>2</sup> -ku <sup>2</sup> lak <sup>2</sup> ‘head’	*ku	HEAD	*m/s-gaw	HEAD
(48)	kələk	kə <sup>3</sup> lak <sup>1</sup>	*kələk	DECEIVE		

Table 8: PAo \*k-

No PTB etymon of PAo \*(a-)kəm YEAR (33) has been reconstructed yet, but this form is cognate with PKC \*kum YEAR (VanBik 2009: 106).

The \*k- prefix in PTB \*k-yim HOUSE (37) apparently preempted the weak root-initial \*y, yielding Proto-Ao \*ki HOUSE. The loss of final \*-m, which occurred in a number of other languages of Nagaland, is currently unexplainable.

The aspirated \***th-** prefix in PAo \***th-ku** NINE (39) possibly descended from a variant PTB form<sup>8</sup> in which the prefixes were related syntagmatically, namely: \***s-d-kəw**. The \***s-** prefix could then have devoiced and induced aspiration on the following \***d-** prefix, yielding \***th-**.

Coupe notes that Mangmetong speakers differ from other Mongsen speakers in their tendency to ‘resyllabify’ word-final retroflex approximant codas (GMA: 55). Based on this observation, Mangmetong Mongsen **kùŋh.ɿə** ‘mushroom’ (44) must derive from a Proto-Mongsen form \*\***kùŋəh.ɿ** in which the approximant is syllable-final, corresponding well with Chungli **kuŋ<sup>1</sup>əɿ<sup>2</sup>**.

Mongsen **kh-**, Chungli **k-** < PAo \***kh-** < PTB \***k-**, \***g-**

Proto-Ao \***kh-** yielded Mongsen aspirated **kh-** and Chungli unaspirated **k-**:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(49)	kháʔ	a <sup>3</sup> -kuʔ <sup>1</sup>	*(a-)khaʔ	BE BITTER	*b-ka-n	BITTER
(50)	juŋ-khəm ‘river bank’	a <sup>1</sup> juŋ <sup>2</sup> kəm <sup>2</sup> ‘river bank’	*khəm	EDGE, BANK	*r-ka(:)m	EDGE, BANK
(51)	khuŋ	a <sup>2</sup> -kuŋ <sup>2</sup>	*(a-)khuŋ	CROW (v.)		
(52)	[tə]-khuŋ	tu <sup>2</sup> -kuŋ <sup>2</sup>	*t-khuŋ	NECK	*goŋ	NECK / THROAT <sup>9</sup>
(53)	khələm	kə <sup>2</sup> ləm <sup>3</sup>	*khələm	TOGETHER		
(54)	khùma	ku <sup>1</sup> mu <sup>2</sup>	*khuma	WOUND, SORE		
(55)	mukhuli ‘smoke’	mu <sup>2</sup> ku <sup>2</sup> zə <sup>2</sup> ‘smoke’	*mukhuləj	SMOKE	*kəw-n/t	SMOKE

Table 9: PAo \***kh-**

The PTB source for the aspiration on PAo \***kh-** is unclear, as none of the above PTB forms are reconstructed with an \***s-** prefix.

<sup>8</sup> Cf. Matisoff’s discussion of a ‘doubly-prefixed prototype’ (1995: 208).

<sup>9</sup> This reconstruction is from Matisoff 1988: 253.

### 2.3. Sibilant Fricatives

This section discusses the reconstruction of the Proto-Ao dental/alveolar and palatal sibilants \*s-, \*z-, \*ʃ-, and \*ʒ-.

#### 2.3.1. PAo \*f-, \*s-

Although neither daughter language contains /ʃ/ as a distinct phoneme, it appears as an allophone of /s/ and can also be reconstructed as a distinct segment at the Proto-Ao level.

*Mongsen s-, Chungli s- [ʃ-] < PAo \*f- < PTB \*sy-*

Proto-Ao \*ʃ- descended from PTB \*sy- (=ʃ) and existed as a phoneme distinct from \*s- in Proto-Ao. In Mongsen, \*ʃ- merged with \*s- before all vowels except /i/ (e.g. PAo \*(a-)ʃa SAY > Mongsen sa ‘say’). In Chungli, on the other hand, any vowel following \*ʃ- was raised to /i/, and the [ʃ] pronunciation was retained (e.g. PAo \*(a-)ʃa SAY > Chungli [a<sup>2</sup>-ʃi<sup>2</sup>] ‘say’). For both languages, these changes yielded a situation in which [ʃ] surfaces only before /i/. Since [s] never appears before /i/, this is a case of complementary distribution, justifying the synchronic treatment of [s] and [ʃ] as allophones of a single phoneme /s/ in both languages.

Confusion caused by contrast-neutralization before /i/ was likely a trigger for this change: Based on current data, it is unclear whether any phonemic \*si sequences existed in Proto-Ao. If a phonemic \*s- did indeed appear before \*-i-, it was likely palatalized and produced as [ʃi], thus neutralizing the contrast between \*s- and \*ʃ- in that position. Speakers would therefore have been unable to determine whether a [ʃi] sequence contained underlying /s/ or /ʃ/. In the development of both Mongsen and Chungli, this issue was resolved by treating all instances of [ʃ] as palatalized /s/. (For convenience, this will be referred to as the PAL-S principle.) The languages differed, however, in the importance attached to preserving the phonetic forms of vowels vs. consonants. If this diachronic change were to be captured with Optimality Theory, it could be said that IDENT-[VOWEL] >> IDENT-[CONS] in Mongsen, while IDENT-[CONS] >> IDENT-[VOWEL] in Chungli. In Mongsen, all sequences violating the PAL-S principle were repaired by preserving the vowels and changing surface [ʃ] to [s]. Thus, PAo \*ʃa and \*ʃə became Mongsen [sa] and [sə]. In Chungli, however, these sequences were repaired by preserving the surface form of the initial consonant and ‘brightening’ the vowel to /i/, essentially establishing a *de facto* palatalization context. PAo \*ʃa and \*ʃə thus both became Chungli [ʃi]. This process is illustrated below in Table 10, with changes in boldface:

Proto-Ao		Mongsen		Chungli	
surface	underlying	surface	underlying	surface	underlying
ʃa	/ʃa/	sa	/sa/	ʃi	/si/
ʃə	/ʃə/	sə	/sə/	ʃi	/si/
ʃi	/ʃi/ or /si/	ʃi	/si/	ʃi	/si/
sa	/sa/	sa	/sa/	sa	/sa/
sə	/sə/	sə	/sə/	sə	/sə/

Table 10: Development of Proto-Ao \*ʃ-

Although each language underwent a different path of development, the phonemic consequence in both languages was a merger of \*ʃ- with \*s-.<sup>10</sup>

Cognate sets supporting the reconstruction of PAo \*ʃ-, which descended unchanged from PTB \*sy-, are presented below in Table 11:

	Mongsen	Chungli	Proto-Ao	PTB
(56)	sa	a <sup>2</sup> -si <sup>2</sup> [a <sup>2</sup> -ʃi <sup>2</sup> ]	*(a-)ʃa	SAY
(57)	[a]-sáʔ ‘meat’ sà.ɹà.ə ‘animal’ sàŋatʃa ‘macaque’ sà-ti ‘elephant’	siʔ <sup>1</sup> [ʃiʔ <sup>1</sup> ] ‘meat’ si <sup>2</sup> .ɹu <sup>3</sup> .ɹu <sup>1</sup> [ʃi <sup>2</sup> .ɹu <sup>3</sup> .ɹu <sup>1</sup> ] ‘animal’ si <sup>1</sup> ŋu <sup>1</sup> [ʃi <sup>1</sup> ŋu <sup>1</sup> ] ‘monkey’ si <sup>2</sup> tiʔ <sup>2</sup> [ʃi <sup>2</sup> tiʔ <sup>2</sup> ] ‘elephant’	*ʃaʔ	ANIMAL / MEAT
(58)	sópáʔ	si <sup>2</sup> paʔ <sup>2</sup> [ʃi <sup>2</sup> paʔ <sup>2</sup> ]	*ʃəpaʔ	WHO?

<sup>10</sup> It has been said that reconstruction using the comparative method is impossible when a “merger of the same phonemes has taken place in all the languages compared” (Fox 1995: 73), but this only the case when the merger proceeded in an *identical manner* in all daughter languages. The merger of \*s- and \*ʃ- took different routes in Chungli and Mongsen and affected adjacent phonemes in different ways, leaving behind evidence of their original status as separate phonemes.

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(59)	si [ʃi]	a <sup>3</sup> -si <sup>1</sup> [a <sup>3</sup> -ʃi <sup>1</sup> ]	*(a-)ʃi	KNOW	*syey-s	KNOW
(60)	məsàʔ	mə <sup>3</sup> siʔ <sup>1</sup> [mə <sup>3</sup> ʃiʔ <sup>1</sup> ]	*m-ʃaʔ	ASK, REQUEST		
(61)	màsəʔ	na <sup>1</sup> si <sup>1</sup> [na <sup>1</sup> ʃi <sup>1</sup> ]	*maʃəʔ	COW		

Table 11: PAo \*f-

Given their similarity, it is probable that PAo \***m-ʃaʔ** ASK, REQUEST (60) is morphologically related to \*(**a-**)**ʃa** SAY (56), by means of the \***m-** prefix and the final glottal stop (which may be the trace of some proto-suffix).

The relationship between the first syllables in Chungli **na<sup>1</sup>si<sup>1</sup>** ‘cow’ and Mongsen **màsəʔ** ‘cow’ is problematic, and thus the Proto-Ao reconstruction given in (61) is tentative. It may be the case that PAo \***m-** > Chungli \***n-** here by means of some harmonic, anticipatory palatalization process, but this is merely speculative.<sup>11</sup> It is also very possible that ‘cow’ is a loanword in both languages, perhaps from Khasi **masi** (Singh 1906: 129).

*Mongsen s-*, *Chungli s-* < *PAo \*s-* < *PTB \*s-*

The following table presents cognate sets for the reconstruction of PAo \***s-**, which descended unchanged from PTB \***s-**:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(62)	asà	a <sup>3</sup> sa <sup>1</sup>	*a-sa	HOWL, SCREAM		
(63)	məsak	mə <sup>3</sup> sak <sup>1</sup>	*m-sak	ITCH (v.)	*m-sak	ITCH
(64)	[a]-sə	sə <sup>1</sup>	*(a-)sə	CLOTH		
(65)	sə	a <sup>2</sup> -sə <sup>2</sup>	*(a-)sə	DIE	*səy	DIE
(66)	[tə]-sə	ta <sup>3</sup> -sə <sup>1</sup>	*t-(a-)sə	BILE		
(67)	<u>səm</u> tsə	a <sup>2</sup> (-)səm <sup>2</sup>	*(a-)səm	RUN		
(68)	asəm	a <sup>1</sup> səm <sup>2</sup>	*a-səm	THREE	*g-sum	THREE

<sup>11</sup> The reconstruction of PAo \***m-** here (instead of something like a labialized \***n<sup>w</sup>-**) is supported by the forms for ‘cow’ in other ‘Ao Group’ languages, namely Yimchungrü <sup>1</sup>**mo<sup>1</sup>ʃi** and Sangtam <sup>2</sup>**mi<sup>2</sup>suu** (Weidert 1987: 286).

<i>Mongsen</i>		<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(69)	sən	a <sup>2</sup> sən <sup>2</sup>	*(a-)sən	BE NEW	*sar	NEW
(70)	sán	a <sup>3</sup> -sən <sup>1</sup>	*(a-)sən	BE SOUR	*su:r ∅ *swa:r	SOUR
(71)	məsən	mə <sup>2</sup> sən <sup>2</sup>	*m-sən	MAGGOT		
(72)	sən	a <sup>2</sup> -sən <sup>2</sup>	*(a-)sən	LEAK, DRIP		
(73)	[tə]-məsən	tə <sup>3</sup> -mə <sup>3</sup> sən <sup>1</sup>	*t-m-sən	LIVER	*m-sin	LIVER
(74)	məsəŋ	mə <sup>2</sup> səŋ <sup>2</sup>	*m-səŋ	BE WHITE		
(75)	[a]-səŋ	səŋ <sup>1</sup>	*(a-)səŋ	WOOD	*siŋ	WOOD
(76)	səŋ	a <sup>2</sup> -səŋ <sup>2</sup>	*(a-)səŋ	FILL, BE FULL		
(77)	təp-sət̚ ( <i>'hit'-'kill'</i> )	təp <sup>3</sup> -sət̚ <sup>1</sup> ( <i>'hit'-'kill'</i> )	*sət̚	KILL	*g/b-sat	KILL
(78)	sù?	a <sup>3</sup> -su <sup>1</sup>	*(a-)su(?)	BE BORN/GIVE BIRTH	*g-sow	BEAR (CHILD)

Table 12: PAo \*s-

## 2.3.2. PAo \*ʒ-, \*z-

As is the case with PAo \*ʃ-, although neither daughter language contains /ʒ/ as a distinct phoneme, it can be reconstructed as a distinct segment at the Proto-Ao level.

*Mongsen z-, Chungli j- < PAo \*ʒ- < PTB ?*

A number of cognate pairs show a correspondence between Mongsen **z-** and Chungli **j-**, which can be regarded as reflexes of the Proto-Ao voiced palatal fricative \*ʒ-. In the development of Mongsen, PAo \*ʒ- was simply fronted to **z-** (merging with PAo \*z-). In Chungli, open and glottal-final rimes following \*ʒ- were raised to **i-** (illustrated in (79)-(81) below), after which all instances of \*ʒ- became **j-** (merging with PAo \*j-):

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(79)	[a]-za	ai <sup>2</sup> (/aji/)	*a-ʒa	GRASS		
(80)	za	a <sup>2</sup> -i <sup>2</sup> (/a-ji/)	*(a-)ʒa	GO IN, ENTER		
(81)	məzəʔ	miʔ <sup>1</sup> (/m-jiʔ/)	*m-ʒəʔ	FIRE	*mey	FIRE
(82)	məzəm	mim <sup>2</sup> (/m-jəm/)	*m-ʒəm	POISON		
(83)	[tə]-məzən	tə <sup>2</sup> -min <sup>2</sup> (/t-m-jən/)	*t-m-ʒən	SHIN		
(84)	azən	ain <sup>2</sup> (/ajən/)	*a-ʒən	POWER, WRATH		
(85)	zək	juk <sup>31</sup>	*ʒuk	SEND		
(86)	zaŋlu	jaŋ <sup>2</sup> lu <sup>2</sup>	*ʒaŋlu	CREATE, BUILD		

Table 13: PAo \*ʒ-

As seen above in Table 13, a /jə/ sequence often surfaces as [i] in Chungli (whether diachronically or synchronically).

The only problematic form above is Mongsen **zək** ‘send’ in (85), which did not follow the expected development from PAo \*ʒuk to Mongsen \*\*zuk. This cannot be due to a phonotactic prohibition against the sequence [zuk] in Mongsen, which is attested in other words (e.g. /məzuk/ ‘crumple’).

The only PTB root (\*mey FIRE) does not provide any evidence for the PTB ancestor of PAo \*ʒ-.

A few cognate pairs show a correspondence in the opposite direction (Mongsen j- : Chungli z-), but these have been reconstructed with PAo \*j- (§2.6.2).

*Mongsen z-, Chungli z- < PAo \*z- < PTB ?*

The remaining instances of Mongsen z- correspond to Chungli z-, thus supporting the reconstruction of PAo \*z-:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(87)	zəŋ	a <sup>3</sup> -zəŋ <sup>1</sup>	*(a-)zəŋ	COUNT / READ	*graŋ	MEASURE / COUNT
(88)	zəlu	zə <sup>3</sup> lu <sup>1</sup>	*zəlu	WRITE	*b-rəy ≈ *b-ris	DRAW / WRITE

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>	<i>PTB</i>
(89)	[tə]-məzəŋ	tə <sup>2</sup> -mə <sup>2</sup> zəŋ <sup>2</sup>	*t-m-zəŋ	NAIL (FINGER/TOE)
				*s-liŋ ~ s-leŋ
				NAIL / CUTICLE†

Table 14: PAo \*z-

The PTB source of Proto-Ao \*z- is difficult to determine from these cognate sets, but it appears to have involved consonant clusters containing PTB \*r-. Additionally, if PAo \*t-m-zəŋ NAIL truly descended from the PTB root given in (89), another possible source of Proto-Ao \*z- could be a frication development of PTB \*l- > z- before \*-iŋ. (A similar development occurred in Chungli with PAo \*(h)l- before \*-əj-; see §2.6.4).

#### 2.4. Affricates

Reconstructing the initial affricates of Proto-Ao requires first addressing the question of their phonemic status in the daughter languages. In both Chungli & Mongsen, [ts(h)] is much more restricted than [tʃ(h)] in its attested phonotactic environments, appearing only before /ə/. Tamsunungsang (2009) capitalizes on this observation to adopt a phonemic analysis of Chungli in which [ts] and [tʃ] are allophones of the same phoneme /tʃ/. The conditioning environment for the surface allophone of /tʃ/ is the allophone of /ə/ ([ɯ] or [ə]), which itself is conditioned by the coda consonant according to the principle of ‘Rime Harmony’: the coda consonant and vowel nucleus of a syllable must correspond in the feature [±back]. If the coda is a member of the class of ‘back consonants’ (/k, ŋ, ʔ/), then a schwa nucleus surfaces as the back vowel [ɯ]. This [ɯ] allophone in turn licenses only [–distributed] onsets, barring [tʃ] and forcing an underlying /tʃ/ onset to surface as [ts]. In all other environments, /tʃ/ surfaces as [tʃ] by default.

While Tamsunungsang’s approach is attractive in its attempt to simplify the Chungli phonemic inventory, his analysis creates a number of difficulties. Because the Rime Harmony principle does not apply to coda-less (open) syllables, he must posit a ban on [ə] in certain open-syllable contexts in order to explain why /tʃə/ surfaces as [tsɯ] and not [tʃə] (2009: 14, 35). This is problematic for my elicited Chungli data, in which an open-syllable [ə] clearly occurs where Tamsunungsang states that only [ɯ] should occur (e.g. [nə<sup>2</sup>] ‘spear’). In addition, Rime Harmony fails to explain why the back consonant /ʔ/ co-occurs as a coda with the front vowel nucleus /i/ (2009: 21). Tamsunungsang also explicitly excludes the coda consonant /ɾ/ from his discussion, since it occurs with all vowel nuclei (front or back) and is not captured by Rime Harmony (2009: 21).

Although their conditioning environments are difficult to adequately describe, the complementary distribution of [ts] and [tʃ] in Chungli certainly suggests a synchronic allophony relationship: [ts] is always followed by the [ʊ] allophone of schwa, while [tʃ] appears with /i/, /a/, /u/, and the [ə] allophone of schwa. Evidence from the domain of morpho-phonological alternations is also significant: When a verb bearing the causative suffix /-tak<sup>2</sup>tsəʔ<sup>3</sup>/ is further combined with the imperative suffix /-aŋ<sup>2</sup>/, the final schwa and glottal stop are deleted, and [ts] becomes [tʃ]:

a<sup>2</sup>-u<sup>2</sup> ‘went’  
 u<sup>2</sup> + -tak<sup>2</sup>tsəʔ<sup>3</sup> (CAUS) → u<sup>2</sup>tak<sup>2</sup>tsəʔ<sup>3</sup> ‘caused to go’  
 u<sup>2</sup>tak<sup>2</sup>tsəʔ<sup>3</sup> + -aŋ<sup>2</sup> (IMP) → u<sup>2</sup>tak<sup>2</sup>tʃaŋ<sup>2</sup> ‘cause to go!’

Note, however, that when the verb root itself ends in the syllable /tsəʔ/, addition of the imperative suffix does not trigger loss of the final schwa or palatalization of [ts]:

a<sup>3</sup>tsəʔ<sup>1</sup> ‘pull’  
 a<sup>3</sup>tsəʔ<sup>1</sup> + -aŋ<sup>2</sup> (IMP) → a<sup>1</sup>tsə<sup>1</sup>aŋ<sup>2</sup> ‘pull!’  
 mə<sup>3</sup>tsəʔ<sup>1</sup> ‘kick’  
 mə<sup>3</sup>tsəʔ<sup>1</sup> + -aŋ<sup>2</sup> (IMP) → mə<sup>3</sup>tsə<sup>1</sup>aŋ<sup>2</sup> ‘kick!’

In an OT analysis, this disparate behavior could be captured by positing a high-ranking root-faithfulness constraint. Whatever the explanation, however, it is apparent that [ts] and [tʃ] have some sort of synchronic relationship in Chungli.

Turning to the status of these affricates in Mongsen, Coupe observes that while Temsunungsang’s phonemic analysis appears to account for a large portion of his corpus of Mangmetong Mongsen, /ts(h)/ and /tʃ(h)/ are “in contrastive distribution before schwa in identical rhymes” (p.c., 28 September 2010), and thus should be considered separate phonemes (e.g. /-tʃhət/ ‘ABIL suffix’ vs. /tshət/ ‘eight’ / ‘stood on’). In addition, a few Mangmetong Mongsen words contain phonotactic sequences that would be violations of Temsunungsang’s system:

Rime Harmony violation

tshət ‘eight’ / ‘stood on’  
 tsən..ə ‘Lotha tribesman (pejorative)’

Open-syllable /ə/ requires [ts] onset – violation

tʃhə.luʔ ‘borrowed’  
 tʃə.li ‘walked’

The near-complementary distribution of /**ts(h)**/ and /**tʃ(h)**/, however, does lead Coupe to propose the possibility of a merger in progress:

“An interesting feature of the dental affricate is that it is constrained to occurring in the environment before the schwa. The drastic loss of other vocalic environments in which it may occur could be the harbinger of a phonemic merger with the palato-alveolar affricate, whose environments of realization are unrestricted synchronically” (GMA: 31).

Coupe’s work on the Waromung variety of Mongsen uncovered some additional evidence for this merger: the existence of two words produced with initial [**ts(h)**] by older speakers but [**tʃ(h)**] by younger speakers, which indicates a possible \***ts(h)**- > **tʃ(h)**- sound change (Coupe 2003: 46-47).

The current level of research suggests, therefore, that \***ts(h)**- and \***tʃ(h)**- were separate phonemes in Proto-Ao which have fully merged in Chungli but are still marginally distinct in Mongsen. This state of affairs is consistent with the observation that Mongsen tends to be more conservative than Chungli (based on comparison with PTB reconstructions). The marginal preservation of these phonemes in Mongsen, combined with the possibility that the mergers took different routes in each language, should allow for the reconstruction of particular instances of Proto-Ao \***ts(h)**- and \***tʃ(h)**- on the basis of comparative evidence.

Given the possibility that surface realizations of allophonic [**ts**] in Chungli reflect original instances of PAo \***ts(h)**-, the Chungli words below are transcribed as if /**ts**/ and /**tʃ**/ are separate phonemes, in order to aid reconstruction.

#### 2.4.1. PAo \***tʃ(h)**-

*Mongsen tʃ-*, *Chungli tʃ-* < PAo \***tʃ-** < PTB \***dzy-**, \***tsy-**, \***kr-**

Table 15 presents the cognate sets that unambiguously support a reconstruction of Proto-Ao unaspirated \***tʃ-**:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(90)	[a]-tʃa	tʃi <sup>1</sup>	* <b>(a)-tʃa</b>	RICE (COOKED)	*dzya	RICE
(91)	tʃà?	a <sup>2</sup> -tʃi? <sup>2</sup>	* <b>(a)-tʃa?</b>	EAT	*dzya-n/k	EAT / FOOD
(92)	tʃà-(ə)ɿ (‘offspring’ + ANOM)	tʃiɿ <sup>1</sup>	* <b>tʃa-ɿ</b>	SON		
(93)	a-tʃu	a <sup>2</sup> -tʃi <sup>2</sup>	* <b>a-tʃu ?</b>	THAT (ONE), DEM.		
(94)	tʃuɿu	tʃi <sup>1</sup> ɿu <sup>1</sup>	* <b>tʃuɿu ?</b>	PINEAPPLE		
(95)	tʃa	a <sup>2</sup> -tʃa <sup>2</sup>	* <b>(a)-tʃa ?</b>	CALL		
(96)	tʃànà?	tʃa <sup>3</sup> na? <sup>1</sup>	* <b>tʃana? ?</b>	DIRT, RUBBISH		
(97)	tʃàŋtʃà	tʃaŋ <sup>2</sup> tʃa <sup>2</sup>	* <b>tʃaŋtʃa ?</b>	BE CLEAR		
(98)	mətʃak	mə <sup>2</sup> tʃak <sup>2</sup>	* <b>m-tʃak</b>	CHEW	*(N/s)-jək	CHEW†
(99)	tʃaŋ	tʃaŋ <sup>2</sup>	* <b>tʃaŋ</b>	SEED	*tsyaŋ	TESTICLE
(100)	[a]-tʃaŋ	tʃaŋ <sup>1</sup>	* <b>(a)-tʃaŋ</b>	RICE (HUSKED, UNCOOKED)		
(101)	tʃəm	a <sup>2</sup> -tʃəm <sup>2</sup>	* <b>(a)-tʃəm</b>	DRINK		
(102)	tʃén	a-tʃən (Clark: A-ZEN)	* <b>(a)-tʃən</b>	BE OLD		
(103)	tʃəp	a <sup>2</sup> -tʃəp <sup>2</sup>	* <b>(a)-tʃəp</b>	CRY, WEEP	*krap	WEEP
(104)	atʃət	a <sup>2</sup> tʃət <sup>2</sup>	* <b>atʃət</b>	GRAB, SQUEEZE		
(105)	[a]-tʃuŋ	tʃuŋ <sup>1</sup>	* <b>(a)-tʃuŋ</b>	SHIELD		

Table 15: PAo \*tʃ-

Palatalization of PAo \*-i occurred in Chungli following \*tʃ- for COOKED RICE, EAT, and SON (90)-(92), but the rime correspondences in THAT (ONE) & PINEAPPLE (Mongsen u : Chungli i) and CALL, DIRT, & BE CLEAR (Mongsen a : Chungli a, even after PAo \*tʃ-) are currently unexplainable.

Proto-Ao \*tʃ- descended from PTB \*dzy-, \*tsy-, and \*kr-. (PTB \*(N/s)-jək CHEW (98) contains a non-standard transcription of \*dzy-.)

Mongsen **tʃh-**, Chungli **s-** < PAo **\*tʃh-** < PTB **\*dzy-**, **\*tsy-**, **\*dz-**, **\*ts-**, **\*kr-**

A robust correspondence between Mongsen **tʃh-** and Chungli **s-** suggests a reconstruction of PAo aspirated **\*tʃh-**, which was preserved in Mongsen but merged with the reflexes of PAo **\*s-** and **\*ʃ-** in Chungli:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>
(106)	tʃhàʔ	a <sup>3</sup> -siʔ <sup>1</sup>	*(a-)tʃhaʔ	TRAP, CATCH	
(107)	taŋtʃhàʔ	taŋ <sup>3</sup> siʔ <sup>1</sup>	*taŋtʃhaʔ	TOUCH	
(108)	tʃhìʔ	a <sup>3</sup> -siʔ <sup>1</sup>	*(a-)tʃhiʔ	CLOSE (v.)	*dzyi:p SHUT / CLOSE (v.)
(109)	tʃhitəp	sitəp (Clark: SHITEP)	*tʃhitəp	GRIND TEETH	
(110)	tʃhaj	sai <sup>31</sup>	*tʃhai	PLAY	*r-tsyay:ɣ PLAY
(111)	tʃhàk <sup>12</sup>	a <sup>3</sup> -sak <sup>1</sup>	*(a-)tʃhak	BE DIFFICULT, HARD	*tsak-t HARD / SOLID <sup>†</sup>
(112)	-tʃhaŋ	-saŋ <sup>2</sup>	*-tʃhaŋ	MASC. NOMINALIZER	
(113)	tʃhəmku	səm <sup>1</sup>	*tʃhəm	MORTAR	*t(s)um ≈ *(t)sum MORTAR
(114)	[a]-tʃhən	sən <sup>1</sup>	*(a-)tʃhən	MONEY	
(115)	mətʃhən	mə <sup>2</sup> sən <sup>2</sup>	*m-tʃhən	WRING, SQUEEZE	*tsyir ≈ *tsyu:r WRING / SQUEEZE
(116)	tʃhət	asət (Clark: ASET)	*(a-)tʃhət	SHAVE, SCRAPE	*m-kret SCRATCH / SCRAPE
(117)	tʃhàktʃhà	sak <sup>31</sup>	*tʃhak	AWAKE, ARISE	
(118)	[a]-tʃhu	atʃu ~ asu (Clark: AZU, ASU)	*a-tʃhu	PUNJI SPIKE	*tsow-t THORN / PIERCE
(119)	tʃhəm	a <sup>3</sup> -səm <sup>1</sup>	*(a-)tʃhəm	WEAR, PUT ON	
(120)	mətʃhəp ‘suck’ mətʃhəp ‘kiss’	mə <sup>3</sup> səp <sup>1</sup>	*m-tʃhəp	SUCK / KISS	*m-dzup ≈ *m-dzip

<sup>12</sup> This Mongsen form comes from Temsunungsang 2009: 212.

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(121)	tʃhàmàʔ	sa³maʔ¹	*tʃhamaʔ	DISAPPEAR / LOSE	*(g/s)-ma-t	PERISH / BE SPENT / BE LOST†
(122)	tʃhuɹu	su²ɹu²	*tʃhuɹu	COOK (RICE)	*tsyow	BOIL (v.) / COOK

Table 16: PAo \*tʃh-

The fact that Chungli ‘punji spike’ (118) shows variation between tʃ- and s- in the reflex of PAo \*tʃh- may be indicative of Mongsen influence (cf. Coupe 2003: 47-50 for an example in which influence from Chungli results in free variation in certain Waromung Mongsen words).

The PTB sources of PAo \*tʃh- are a variety of dental and palatal affricates, in addition to the cluster \*kr-. Presumably some prefixal interaction is the cause of the aspiration on the initial in Proto-Ao. Note that DISAPPEAR / LOSE (121) demonstrates a possible development of the PTB \*s- prefix to PAo \*tʃh-, but this is inconclusive at the moment.

*Mongsen tsh-, Chungli s- < PAo \*tʃh- < PTB ?*

Chungli s- also corresponds in many forms with the Mongsen dental affricate tsh-. Since this cannot be Proto-Ao \*tsh- (which became Chungli ts-; see §2.4.2), the forms below may contain additional reflexes of the aspirated palatal affricate \*tʃh- that was reconstructed above:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(123)	mətshə	mə²sə²	*m-tʃhə	TIE (v.)		
(124)	[a]-tshə	sə²	*(a)-tʃhə	MITHUN		
(125)	mətshə	mə²sə²	*m-tʃhə	DEER		
(126)	atshəkəmə	a³sə²kəmə²	*atʃhəkəmə	BOAST		
(127)	atshək	a³-sək¹	*a-tʃhək	FEEL COLD		
(128)	[a]-tshəŋ	suŋ²	*(a)-tʃhuŋ ?	RUST	*g/b-syaŋ	EXCREMENT / RUST / BLIGHT

Table 17: PAo \*tʃh-

The development of Proto-Ao \*tʃh- in Ao can now be described as follows:

*tʃh-	>	Chungli:	s-
	>	Mongsen:	tsh- before *-ə and *-ək (and possibly *-əŋ & *-əʔ) tʃh- elsewhere

The diachronic relationship depicted above between PAo \*tʃh- and its Mongsen reflexes has the unique advantage of exactly mirroring the allophonic relationship between [tʃ] and [ts] in Chungli: /tʃ/ is usually realized as [tʃ], surfacing as [ts] only when it is followed by schwa and the syllable coda is null, /ʔ/, or a velar consonant. The reflexes of PAo \*tʃh- may therefore be moving toward a similar relationship in Mongsen.

A single form from Coupe's glossary (GMA: 499), not in the above table, appears to contradict this proposal: Mangmetong Mongsen tʃhəluʔ 'borrowed', in which tʃh- appears before an open-syllable schwa where tsh- is expected. Given that this merger of \*tʃ(h)- and \*ts(h)- is currently in progress, however, and that sound changes are not instantaneously propagated among all speakers of a language, it is very possible that this lexical item came from a speaker who had not yet adopted the merger. Alternatively, this form may be a loan from a more-conservative dialect.

RUST (128) is the only problematic case in Table 17. Chungli suŋ<sup>2</sup> could have descended from Proto-Ao \*(a-)tʃhuŋ, but the expected Mongsen reflex would then be a-tʃhuŋ. If PAo \*(a-)tʃhəŋ is reconstructed on the basis of Mongsen [a]-tshəŋ, however, then the expected Chungli reflex is səŋ. The PTB form \*g/b-syaŋ is also peculiar, and may not be an appropriate etymon for this set.

#### 2.4.2. PAo \*ts(h)-

Mongsen ts-, Chungli ts- < PAo \*ts- < PTB \*ts-, \*dz-, \*tsy-, \*kl-

The following correspondences between Mongsen ts- and Chungli [ts-] (/tʃ/) point to Proto-Ao \*ts-:

	Mongsen	Chungli	Proto-Ao	PTB
(129)	mətsə	mə <sup>2</sup> tsə <sup>2</sup>	*m-tsə	SALT
				*m-t(s)i
				*tsa
				SALT / YEAST
				SALT

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(130)	[a]-tsə	tsə <sup>1</sup>	*(a-)tsə	WATER	*tsyu	WATER / BODY FLUID
(131)	mətsə	mə <sup>2</sup> tsə <sup>2</sup>	*m-tsə	SALIVA, SPITTLE	*m-ts(y)il	SPITTLE / SALIVA
(132)	həntsə	ən <sup>2</sup> tsə <sup>2</sup>	*hən-tsə	EGG	*dz(y)u	EGG
(133)	atsə	tsək <sup>31</sup>	*(a-)tsə(k)	FALL, PLUMMET	*kla-k/y/t	≠ *gla-k/y/t
(134)	tsək	a <sup>2</sup> -tsək <sup>2</sup>	*(a-)tsək	ROAST		FALL
(135)	tsəŋ	a <sup>2</sup> -tsəŋ <sup>2</sup>	*(a-)tsəŋ	PUNCH, SPEAR (v.)		

Table 18: PAo \*ts-

The set of possible PTB sources for PAo \*ts- overlaps with that for PAo \*tʃ(h)-, suggesting that the palatal and dental affricates underwent various unknown changes between the PTB and PAo stages.<sup>13</sup>

FALL, PLUMMET (133) shows PTB \*kl- > PAo \*ts-, a sound change that serves as an excellent parallel to PTB \*kr- > PAo tʃ(h)- (see (103) CRY, WEEP and (116) SHAVE, SCRAPE). The Mongsen & Chungli forms of FALL also reflect the original variation in the presence/absence of suffixal \*-k.

In both Ao forms for ‘egg’ (132), the first syllable means ‘chicken’ (see (297) CHICKEN).

*Mongsen tʃak/ŋ, Chungli tsək/ŋ < PAo \*tsak/ŋ < PTB ?*

Three sets show a correspondence between Mongsen tʃaC<sub>velar</sub> and Chungli [tsəC<sub>velar</sub>]:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(136)	[a]-tʃak	tsək <sup>1</sup>	*(a-)tsak	PADDY, GRAIN		
(137)	itʃak	i <sup>2</sup> tsək <sup>2</sup>	*itsak	FERMENTED BAMBOO SHOOT		
(138)	[tə]-tʃaŋ	tə <sup>2</sup> -tsəŋ <sup>2</sup>	*t-tsaŋ	FOOT / LEG	*r-kaŋ	≠ *keŋ
						LEG / FOOT

Table 19: PAo \*tsak/ŋ

<sup>13</sup> Matisoff notes that “[t]he contrast between dental and palatal sibilants and affricates is shaky or non-existent in many TB languages” (HPTB: 30), a fact that makes their PTB reconstruction particularly difficult.

On the evidence PTB **\*r-kaŋ** LEG / FOOT (138), one could propose a scenario in which a metathesized form **\*\*kraŋ** followed the aforementioned PTB **\*kr-** > PAo **\*tʃ(h)-** development to yield Proto-Ao **\*\*tʃaŋ** for FOOT / LEG. Based on the forms in Table 15 (p. 22), however, PAo **\*\*tʃaŋ** should have yielded **tʃaŋ** in both Mongsen and Chungli. Likewise, PAo **\*\*tʃak** would have become **tʃak** in both languages.

Ignoring the PTB evidence, then, one must propose PAo **\*tsaC<sub>velar</sub>** for these forms in order to maintain a consistent system. In the process of merging the PAo affricates **\*ts-** and **\*tʃ-**, Mongsen preserved **\*-ak/\*-aŋ** and palatalized **\*ts-** to **tʃ-** in this environment. Chungli, on the other hand, preserved PAo **\*ts-** here as [ts] (/tʃ/) and instead reduced the vowel to schwa.

*Mongsen tsə, Chungli tʃi < PAo \*tsi < PTB ?*

Three cognate pairs contain a correspondence between Mongsen **tsə** and Chungli **tʃi**, which may reflect Proto-Ao **\*tsi**:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>
(139)	mùtsə	mu <sup>1</sup> tʃi <sup>2</sup>	*mutsi	SUGAR CANE	
(140)	atsə	a <sup>2</sup> tʃi <sup>2</sup>	*a-tsi	LOOK, STARE	
(141)	tsə	mə <sup>2</sup> tʃi <sup>2</sup>	*(m-)tsi	PECK, BITE	

Table 20: PAo **\*tsi**

When PAo **\*ts-** preceded **\*-i**, the initial was palatalized to **tʃ-** in Chungli, while the vowel was simply reduced to schwa in Mongsen.

*Mongsen tsh-, Chungli ts- < PAo \*tsh- < PTB \*s-r(y)- ?*

Table 21 illustrates the correspondence of Chungli [ts-] and Mongsen **tsh-**, supporting the reconstruction of the PAo aspirated dental affricate **\*tsh-**:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(142)	tshə	a <sup>3</sup> -tsə <sup>1</sup>	*(a-)tshə	BE SHORT		
(143)	mətshək	mə <sup>3</sup> tsək <sup>1</sup>	*m-tshək	PINCH	*sik	PINCH / TWIST
(144)	[a]-tshək	a <sup>3</sup> tsək <sup>1</sup>	*a-tshək	LOUSE	*s-r(y)ik	LOUSE
(145)	tshək	a <sup>3</sup> -tsək <sup>1</sup>	*(a-)tshək	COLLIDE, BUMP		
(146)	tshə?	a <sup>3</sup> tsə? <sup>1</sup>	*(a-)tshə?	PULL		

Table 21: PAo \*tsh-

The form of PTB LOUSE (144) suggests that PAo \*tsh- descended from some sort of PTB \*s-r(y)- cluster. PTB \*sik PINCH / TWIST (143), however, would be expected to yield PAo \*m-sək, not the proposed form \*m-tshək. It is interesting, therefore, that Temsunungsang reports Chungli ‘pinch’ as **mur<sup>3</sup>suik<sup>1</sup>** (= **mə<sup>3</sup>sək<sup>1</sup>**) (2009: 209), which fits perfectly with PTB \*sik.

#### 2.4.3. Summary

The following table summarizes the diachronic analysis proposed here for the Proto-Ao affricates:

<i>PAo</i>	<i>environments</i>	<i>Chungli</i>	<i>Mongsen</i>
*tʃ-	(unconditioned)	tʃ-	tʃ-
*tʃh-	before *-ə, *-ək elsewhere	s- s-	tsh- tʃh-
*ts-	before *-ak before *-i elsewhere	[ts(ək)] tʃ(i) [ts-]	tʃ(ak) ts(ə) ts-
*tsh-	(unconditioned)	[ts-]	tsh-

Table 22: Proto-Ao affricate development

*Mongsen tʃ(h)-, Chungli t- < PAo \*c(h)- ? < PTB ?*

Before moving to the nasal stops, a set of puzzling correspondences should be noted. In three forms, Mongsen unaspirated tʃ- corresponds to Chungli t-. In two forms, Mongsen aspirated tʃh- also corresponds to Chungli t-:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>
(147)	-tʃən	-tən <sup>1</sup>	*-cən ?	LOC. NOMINALIZER	
(148)	tʃuk	tuk <sup>2</sup> -tsə <sup>3</sup>	*cuk ?	ABANDON, LEAVE	
(149)	hitʃak	itak (Clark: ITAK)	*hicak ?	HANG	
(150)	tʃhəm	a <sup>2</sup> -təm <sup>2</sup>	*(a-)chəm ?	PLANT (v.)	
(151)	-tʃhət	-tət (Clark: TET)	*-chət ?	ABIL. SUFFIX	

Table 23: Mongsen tʃ(h)- : Chungli t-

These cognate pairs may provide evidence for PAo palatal stops (\*c- and \*ch-), but this hypothesis awaits more data.

## 2.5. Nasal Stops

As with the oral stops, three places of articulation can be reconstructed for the nasal stops, with voiced and voiceless variants: \*hm- & \*m-, \*hn- & \*n-, and \*hŋ- & \*ŋ-.

### 2.5.1. PAo \*(h)m-

In the large majority of cognate sets, Chungli m- corresponds to both Mongsen m- and hm-, with no obvious environment conditioning the voiceless nasal in Mongsen. Both \*hm- and \*m- are thus reconstructed for Proto-Ao in the following tables:

*Mongsen hm-, Chungli m- < PAo \*hm- < PTB ?*

Table 24 presents the reconstruction of PAo \*hm-, whose PTB source is unknown:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>
(152)	hmiluŋ ‘cloud, fog’	mi <sup>1</sup> luŋ <sup>2</sup> ‘rising ashes’	*hmiluŋ	VAPOR	
(153)	hmapaŋ	ma <sup>2</sup> paŋ <sup>2</sup>	*hmapaŋ	TIME	
(154)	hmapa	ma <sup>2</sup> pa <sup>2</sup>	*hmapa(?)	WORK, JOB	

Table 24: PAo \*hm-

*Mongsen m-, Chungli m- < PAo \*m- < PTB \*m-*

PAo \*m- descended unchanged from PTB \*m-, as shown below:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(155)	mama	ma <sup>2</sup> ma <sup>2</sup>	*mama	BREAST		
(156)	màŋ	a <sup>3</sup> -maŋ <sup>1</sup>	*(a-)maŋ	BE DARK	*s-maŋ	BLACK / INK / DEEP

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(157)	maŋ	a <sup>2</sup> maŋ <sup>2</sup>	*(a-)maŋ	BELIEVE		
(158)	[tə]-maŋ ‘body’ [a]-maŋ ‘corpse’	tə <sup>2</sup> -maŋ <sup>2</sup> ‘body’	*(t/a-)maŋ	BODY / CORPSE	*s-maŋ	CORPSE
(159)	aja-maŋ ‘dream’ (n.)	puŋ <sup>2</sup> maŋ <sup>2</sup> ‘dream’ (n./v.)	*maŋ	DREAM	*r/s-maŋ	DREAM
(160)	mà?	a <sup>3</sup> -ma? <sup>1</sup>	*(a-)ma?	SLAP		
(161)	mà?	ma? <sup>1</sup>	*ma?	NO	*ma-y	NEGATIVE
(162)	mə-	mə <sup>2</sup> -	*mə-	NEG (VERBAL)	*ma-y	NEGATIVE
(163)	mən	a <sup>3</sup> -mən <sup>1</sup>	*(a-)mən	SIT	*myan	SIT <sup>†</sup>
(164)	muk	a <sup>3</sup> -muk <sup>1</sup>	*(a-)muk	BROOD, HATCH		
(165)	mùŋ	a <sup>3</sup> -muŋ <sup>1</sup>	*(a-)muŋ	REST, OBSERVE		
(166)	mà.rùk	ma.ruk	*ma.ruk	CUP		
(167)	mənti	mən <sup>2</sup> ti <sup>2</sup>	*mənti	CORN		
(139)	mùtsə	mu <sup>1</sup> tʃi <sup>2</sup>	*mutsi	SUGAR CANE		

Table 25: PAo \*m-

Note that the medial glide in PTB \*myan SIT (163) is supported by only one form in the STEDT database, and thus might be better reconstructed as \*m(y)an.

*Mongsen (h)mi-*, *Chungli nə-* < *PAo \*(h)məj-* < *PTB \*məy-*

For a number of cognate pairs, Mongsen **(h)m-** is found to correspond with Chungli **n-**, shown below in Table 26. The prevalence of the Mongsen **-i** : Chungli **-ə** vowel correspondence in these pairs points to an original PAo **\*-əj-** nucleus (<PTB **\*-əy**). Since this same Proto-Ao diphthong affected other initial consonants in Chungli (see §2.6.2 & §2.6.4), it is not surprising that an original bilabial nasal would palatalize to Chungli **n-** when adjacent to **\*-əj-** (PAo **\*məj-** > pre-Chungli **\*\*nəj-** > Chungli **nə-**, but PAo **\*məj-** > Mongsen **\*mi-**):

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(168)	[a]-mi	nə <sup>1</sup>	*(a-)məj	YAM	*m-n(w)ay	YAM
(169)	[a]-mi	nə <sup>2</sup>	*(a-)məj	SPEAR		
(170)	-mì	-nə <sup>1</sup>	*-məj	DESID. SUFFIX		
(171)	[a]-mi?	nə(?) (Clark: NṼ)	*(a-)məj?	PERSON	*r-mi(y)-n	MAN / PERSON <sup>14</sup>
(172)	mijaŋ	a <sup>2</sup> -naŋ <sup>2</sup>	*(a-)m-jaŋ	BE SWEET		
(173)	[tə]-hmila	ta <sup>2</sup> -nə <sup>2</sup> la <sup>2</sup>	*t-(a-)hməjla	SHADOW, SOUL	*m-hla	SOUL

Table 26: PAo \*(h)məj-

It is interesting to note that Clark's entry<sup>15</sup> for Chungli 'yam' (168) is transcribed as GNṼ (1911: 242), suggesting that he heard [ɲə] with a palatal nasal. If this is accurate, it may indicate that PAo \*m- underwent palatalization as far as \*\*ɲ- in Chungli, though today this phoneme is clearly /n/. With regards to the original PTB source of the initial in this form, the relationship of PAo \*(a-)məj to PTB \*m-n(w)ay is unclear.

Proto-Ao \*(a-)məj? PERSON (171) clearly descended from the PTB allofamic variant \*r-məy-n, though the source of the PAo glottal stop is unknown. Clark states that Chungli NṼ [nə(?)] 'person' is "now nearly obsolete except in composition" (1911: 519). The common Chungli word for 'person' is now ni<sup>2</sup>suŋ<sup>2</sup>, whose first syllable may reflect PAo \*(a-)məj?, although the rime development is unexpected.

The Mongsen and Chungli forms for 'be sweet' (172) appear to have descended from a Proto-Ao etymon in which the \*m- prefix was affected by the root-initial palatal glide \*j-. In Mongsen, the schwa vocalization of the prefix was simply raised to -i, while in Chungli the prefix was palatalized when it preempted the root-initial glide: PAo \*(a-)məjaŋ > \*\*a-nə(j)aŋ > Chungli a-naŋ. In other \*j-initial Proto-Ao roots, in which the rime was \*-əm, \*-əp, or \*-uŋ, the \*m- prefix did not preempt the root-initial in Chungli (§2.6.2).

Proto-Ao SHADOW, SOUL in (173) is a complicated case, with at least a couple of possible reconstructions. The most straightforward analysis recognizes Mongsen hmi- and Chungli nə- here as reflexes of PAo \*hməj-, yielding \*t-(a-)hməjla for the full Proto-Ao etymon. If the PAo form truly descended from PTB \*m-hla, however, then the syllable

<sup>14</sup> The sequence i(y) in a PTB reconstruction indicates allofamic variation between \*i and \*əy (HPTB: 509).

<sup>15</sup> The description actually sounds like that of a taro, however.

\***hməj-** is much too complex to be the reflex of the PTB prefix \***m-**.<sup>16</sup> Another possibility is that the PTB form was actually \***s-m-la** (cf. PLB \***s/ʔ-la**<sup>3</sup> SOUL / SPIRIT [HPTB: 39]), yielding PAo \***t-(a)s-m-la**.<sup>17</sup> The Chungli-Mongsen split then occurred with the \***s-** prefix intact, which devoiced the following \***m-** in Mongsen but palatalized it to **n-** in Chungli (cf. the palatalizing effect of prefixal \***s-** in Lepcha, described in Benedict 1943). Neither of these proposals should be considered conclusive, however.

### 2.5.2. PAo \*(h)n-

Both voiceless and voiced variants of dental/alveolar nasals are reconstructed for Proto-Ao.

Mongsen **hn-**, Chungli **n-** < PAo \***hn-** < PTB \***s-n-** ?

Table 27 presents the cognate pairs supporting the reconstruction of PAo \***hn-**:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(174)	áhná ‘be near’	a <sup>3</sup> na <sup>1</sup> ‘near’	* <b>ahna</b>	BE NEAR	*s-na:y	NEAR
(175)	məhnəm	mə <sup>2</sup> nəm <sup>2</sup>	* <b>m-hnəm</b>	SMELL	*m/s-nam	SMELL
(176)	hni	a <sup>2</sup> ni <sup>2</sup> -tak <sup>3</sup>	* <b>(a-)hni</b>	FOLLOW	*s-naŋ (?)	FOLLOW
(177)	hnàk	a <sup>3</sup> nak <sup>1</sup>	* <b>(a-)hnak</b>	SCRATCH	*hyak (?)	SCRATCH
(178)	[tə]-hnaɽuŋ	tə <sup>2</sup> -na <sup>2</sup> .ɽuŋ <sup>2</sup>	* <b>t-hnaɽuŋ</b>	EAR	*r/g-na	EAR / HEAR
(179)	ahnəm	a <sup>2</sup> nəm <sup>2</sup>	* <b>ahnəm</b>	FATHOM	*la(:)m	FATHOM
(180)	hnaɽu	na <sup>2</sup> .ɽu <sup>2</sup>	* <b>hnaɽu</b>	FLOWER		

Table 27: PAo \***hn-**

The proposed PTB roots for these forms do not unambiguously identify the source of PAo \***hn-**. For BE NEAR, SMELL, and FOLLOW (174)-(176), the PTB \***s-** prefix may have devoiced the root-initial \***n-**, though the absence of a secondary

<sup>16</sup> Jim Matisoff (p.c., 2 November 2010) has suggested the intriguing possibility that PTB \***m-hla** SOUL could be reanalyzed as compound of \***mi(y)** PERSON and \***hla** (which would now mean SHADOW) – an idea that matches well with the Proto-Ao reconstruction \***t-(a)hməj-la**.

<sup>17</sup> I am well aware that this reconstruction leaves me open to the charge of ‘stuffing the proto-form’ (cf. Matisoff 1982)!

palatal infix due to \*s- requires explanation (see §2.8.2). The voiceless nasal in Proto-Ao **\*(a-)hnak** SCRATCH (177) may be tentatively attributed to rhinoglottophilia (Matisoff 1975), while the devoicing of the initial nasal in PTB **\*r/g-na** (178) to yield PAo **\*hna-** EAR has an unknown cause. FATHOM (179) exhibits a sporadic **\*l- > \*hn-** development not corroborated by any other correspondence sets.

PAo **\*(a-)hni** FOLLOW appears to be paradigmatically related to PAo **\*(a-)ni** LEAD (v.) (198), with the voicelessness of the initial nasal serving some sort of morphological function. However, if PAo **\*hn-** is the remnant of an original causative PTB **\*s-** prefix (cf. HPTB: 100), then Proto-Ao LEAD and FOLLOW are paradigmatically related in an unexpected way, with FOLLOW literally meaning ‘cause to lead’.

*Mongsen n-, Chungli n- < PAo \*n- < PTB \*n-*

Proto-Ao **\*n-** largely descended from PTB **\*n-**:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(181)	mənən	mə <sup>2</sup> nən <sup>2</sup>	*m-nən	BE/MAKE DIRTY	*na-n	ILL / HURT / EVIL SPIRIT
(182)	thani ‘today’	ta <sup>2</sup> nə <sup>2</sup> ‘today’ a <sup>1</sup> nə <sup>2</sup> ‘sun’	*nəj	SUN, DAY	*nəy	SUN / DAY
(183)	[tə]-nu	tə <sup>2</sup> -nu <sup>2</sup>	*t-nu	YOUNGER SIBLING	*na:w	YOUNGER SIBLING
(184)	məni	mə <sup>2</sup> nə <sup>2</sup>	*m-nəj	LAUGH, SMILE	*m-nwi(y)-k	LAUGH
(185)	nəŋ	na <sup>2</sup>	*na(ŋ)	YOU (2SG)	*na-ŋ	2 <sup>ND</sup> PERSON PRONOUN
(186)	nák	a <sup>3</sup> -nak <sup>1</sup>	*(a-)nak	BE BLACK	*s-nak	BLACK
(187)	nəm	a <sup>2</sup> nəm <sup>2</sup>	*(a-)nəm	BE WELL, SATISFIED	*s-nam	GOOD
(188)	thəni	tə <sup>2</sup> nət <sup>2</sup>	*th-ni ɤ *th-nət	SEVEN	*s-ni-s	SEVEN
(189)	anət	(a <sup>1</sup> na <sup>1</sup> )	*a-nət	TWO	*g-ni-s/k	TWO
(190)	[tə]-nik	tə <sup>2</sup> -nək <sup>2</sup>	*t-nik	EYE	*s-mik ɤ *s-myak	EYE
(191)	[tə]-niŋ	tə <sup>2</sup> -nəŋ <sup>2</sup>	*t-niŋ	NAME	*r/s-miŋ	NAME

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(192)	nì	ni <sup>2</sup>	*ni	I, ME (1SG)	*ŋa-y	1 <sup>ST</sup> PERSON PRONOUN
(193)	mənaʔ	mə <sup>3</sup> naʔ <sup>3</sup>	*m-naʔ	AFFIX, STICK		
(194)	ɹənəm	ɹə <sup>2</sup> nəm <sup>2</sup>	*ɹ-nəm	BE/GET READY		
(195)	tənəm	tə <sup>2</sup> nəm <sup>2</sup>	*t-nəm	MOUNTAIN		
(196)	nəm	a <sup>2</sup> -nəm <sup>2</sup>	*(a)-nəm	PUSH, PRESS		
(197)	mùni	ta <sup>1</sup> -nə <sup>2</sup>	*-nəj	CAT		
(198)	nì	a <sup>2</sup> ni <sup>2</sup>	*(a)-ni	LEAD (v.)		
(199)	anik	a <sup>2</sup> -nək <sup>2</sup>	*a-nik	BE TENDER, SOFT		
(200)	[a]-niŋ	a <sup>3</sup> nəŋ <sup>1</sup>	*a-niŋ	SKY		
(201)	mənu	mə <sup>2</sup> nu <sup>2</sup>	*m-nu	BE LATE		
(202)	[a]-nuk	nuk <sup>1</sup>	*(a)-nuk	MACHETE		
(203)	nuklən	nuk <sup>1</sup> lən <sup>1</sup>	*nuklən	HUNDRED		

Table 28: PAo \*n-

The reconstructed Proto-Ao reflexes of PTB \*s-nak BLACK (186) and \*s-nam GOOD (187) show no voiceless or palatalized nasals, appearing not to have been affected by the \*s- prefix. This suggests that they may have descended from prefix-less PTB variants.

Allofamic variants must be reconstructed at the Proto-Ao stage for SEVEN (188), reflecting the original PTB suffixed vs. unsuffixed variants. The regular development of the PTB \*-s suffix is PAo \*-t, with all vowels before final \*-t then reducing to schwa in Proto-Ao (cf. PTB \*g/b-sat > PAo \*sət KILL [77]). Unsuffixed PTB \*s-ni yielded the PAo variant \*th-ni, reflected in Mongsen thəni. (The source of aspiration on the prefix is unknown.) The suffixed variant PTB \*s-ni-s became the PAo variant \*th-nət according to the regular development of PTB \*-i-s > \*\*-it > PAo \*-ət, finally reflected in Chungli tə<sup>2</sup>nət<sup>2</sup>.

Similar variation between \*a-na ≈ \*a-nət could be posited for Proto-Ao TWO (189), but this would require a PTB form like \*na-s, instead of the reconstructed \*g-ni-s/k. The source of Chungli a<sup>1</sup>na<sup>1</sup> ‘two’, therefore, remains something of a mystery.

Proto-Ao **\*t-nik** EYE (190) likely descended from the PTB variant **\*s-myak**, with the medial palatal glide effecting both the palatalization of **\*m-** and the raising of **\*-a-** to **\*-i-**. PTB **\*m-** in **\*r/s-miŋ** NAME (191) also underwent palatalization to PAo **\*n-**, perhaps through the influence of the **\*s-** prefix or by adjacency to the **\*-iŋ** rime.

PTB **\*ŋa-y** 1<sup>ST</sup> PERSON PRONOUN (192) is included for completeness, but its relationship to PAo **\*ni** is problematic.

### 2.5.3. PAo **\*(h)ŋ-**

Finally, voiceless and voiced variants of the velar nasal are reconstructed for Proto-Ao.

*Mongsen* **hŋ-**, *Chungli* **ŋ-** < PAo **\*hŋ-** < PTB **\*g-n-**, **\*s-ŋ-** ?

The correspondence of Mongsen **hŋ-** with Chungli **ŋ-** supports the reconstruction of Proto-Ao **\*hŋ-**, shown in Table 29:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(204)	hŋa	a <sup>2</sup> ŋa <sup>2</sup>	<b>*(a)hŋa</b>	HEAR, LISTEN	<b>*r/g-na</b>	EAR / HEAR
(205)	[a]-hŋá?	a <sup>3</sup> ŋu? <sup>1</sup>	<b>*a-hŋa?</b>	FISH	<b>*s-ŋya</b>	FISH

Table 29: PAo **\*hŋ-**

PAo **\*(a)hŋa** HEAR, LISTEN (204) may have developed from a variant<sup>18</sup> of PTB **\*r/g-na** in which the velar prefix interacted with the root-initial nasal to yield **\*\*ŋ-** (perhaps through metathesis: **\*g-n-** > **\*\*ng-** > **\*\*ŋ-**). The reason for the devoicing to PAo **\*hŋ-**, however, is unknown. The preservation of the **\*-a** rime in Chungli **a<sup>2</sup>ŋa<sup>2</sup>** ‘hear’, which regularly became **\*-u** after velar nasals (as in FISH), may indicate that **\*g-n-** became a velar nasal in both languages only after the PAo **\*-a** > Chungli **-u** development.

The voiceless nasal in PAo **\*a-hŋa?** FISH (205) may be a result of the **\*s-** prefix in PTB **\*s-ŋya**. The medial palatal glide in PTB **\*s-ŋya** appears not to have been preserved in the Proto-Ao form.

*Mongsen* **ŋ-**, *Chungli* **ŋ-** < PAo **\*ŋ-** < PTB **\*ŋ-**

PAo **\*ŋ-** descended unchanged from PTB **\*ŋ-**:

<sup>18</sup> Cf. a different PAo reflex of PTB **\*r/g-na** in (178).

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(206)	phaŋa	pu <sup>1</sup> ŋu <sup>2</sup>	*ph-ŋa	FIVE	*l/b-ŋa	FIVE
(207)	maŋu	mu <sup>2</sup> ŋu <sup>2</sup>	*maŋu	BANANA		

Table 30: PAo \*ŋ-

It is not yet known how the PTB \*b- prefix in FIVE (206) became devoiced and aspirated to yield PAo \*ph-.

## 2.6. Glides and Liquids

The Proto-Ao inventory of approximants includes voiced & voiceless variants of the bilabial glide and palatal glide, as well as the liquids (rhotic & lateral).

### 2.6.1. PAo \*(h)w-

*Mongsen hwa-*, *Chungli u-* < PAo \*hwa- < PTB \*p<sup>w</sup>a ?

Table 31 presents the sole cognate set for PAo voiceless \*hw-:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(208)	[a]-hwá?	au? <sup>31</sup>	*a-hwa?	BAMBOO	*g/r-p <sup>w</sup> a	BAMBOO

Table 31: PAo \*hw-

Chungli au?<sup>31</sup> ‘bamboo’ represents the regular development of PAo \*(h)wa- > Chungli u-. The origin of PAo \*hw- in this form is the PTB ‘extrusional’ \*p<sup>w</sup>-, which was reinterpreted as a prefix after extrusion and subsequently lost (cf. Matisoff 2000: 180),<sup>19</sup> although the source of devoicing is unknown.

<sup>19</sup> Cf. Proto-Karen \*hwa, which also descended from this PTB etymon (HPTB: 305).

Mongsen *wa-*, Chungli *u-* < PAo *\*wa-* < PTB *\*wa-*

Other cognate sets support the reconstruction of PAo voiced *\*w-*, which descended from PTB *\*w-*:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(209)	wa	a <sup>2</sup> -u <sup>2</sup>	*(a-)wa	GO	*s-wa	GO
(210)	wàzàʔ	u <sup>1</sup> zəʔ <sup>1</sup>	*wa-ʔ	BIRD	*wa	BIRD / FEATHER

Table 32: PAo *\*w-*

As seen in GO and BIRD, Chungli *u-* corresponds to Mongsen *wa-* where the PTB root has *\*wa-*. This indicates that PTB *\*wa-* > PAo *\*wa-* > Mongsen *wa-*, Chungli *u-*.

Mongsen *wa-*, Chungli *wa-* < PAo *\*Wa-* < PTB ?

In other cognate sets, however, Mongsen *wa-* corresponds with Chungli *wa-*:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>
(211)	muwa	<u>mu<sup>2</sup>(w)a<sup>2</sup>-tsəʔ<sup>3</sup></u>	*m-Wa	BLESS	
(212)	wàʔ ‘slice’	a <sup>3</sup> -waʔ <sup>1</sup> ‘swim / make a sawing motion’	*(a-)Waʔ	SLICE, SAW	
(213)	wàk	a <sup>3</sup> -wak <sup>1</sup>	*(a-)Wak	SWELL, BE SWOLLEN	
(214)	wahɹu	waɹu (Clark: WARO)	*Wahɹu	CROW (n.)	

Table 33: PAo *\*W-*

PTB reconstructions are unfortunately not available for these pairs. Unless Chungli has borrowed all these words from Mongsen, it must be the case that their Proto-Ao initial differs somehow from that in GO (209) and BIRD (210), reconstructed as PAo *\*w-*. The current data is inconclusive, and thus these ‘deviant’ Proto-Ao approximants are simply represented by capital *W*’s until further investigation can be conducted.

2.6.2. PAo *\*(h)j-*

The palatal glide exhibited both voiced and voiceless variants in Proto-Ao.

*Mongsen hj-*, *Chungli Ø-* < PAo *\*hj-* < PTB *\*y-*

The Proto-Ao voiceless palatal glide was preserved in Mongsen but totally lost in Chungli:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(215)	ahjak	ak <sup>31</sup>	*ahjak	BE SHY	*g-yak, *s-r(y)ak	ASHAMED
(216)	<sup>h</sup> jaʔ <sup>1 20</sup>	aaʔ <sup>31</sup>	*(a-)hjaʔ	EARN		
(217)	[a]-hjim	<u>am</u> <sup>2</sup> tsək <sup>31</sup>	*a-hjəm	BISCUIT		
(218)	[a]-hju	u <sup>2</sup>	*(a-)hju	WORD		
(219)	hju	<u>u</u> <sup>2</sup> taŋ <sup>2</sup>	*hju	WEIGH		
(220)	hjaŋkhu	jaŋ <sup>2</sup> ku <sup>2</sup>	*hjaŋkhu	BAG		

Table 34: PAo *\*hj-*

PAo *\*hj-* likely descended from some interaction of prefixes with PTB *\*y-*, as suggested by the PTB forms in (215).

The preservation of the palatal glide in Chungli **jaŋ<sup>2</sup>ku<sup>2</sup>** ‘bag’ (220) is the only exception to the development posited here, suggesting that it may be a Mongsen loanword.

*Mongsen j-*, *Chungli j-* < PAo *\*j-* < PTB *\*y-*

The Proto-Ao voiced palatal glide was preserved in both Ao languages:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>
(221)	thijàʔ	ta <sup>31</sup>	*th-ja(?) ?	WAGES	
(222)	thija	tia <sup>2</sup>	*th-ja	LUCK, FORTUNE	

<sup>20</sup> This Mongsen form comes from Temsunungsang 2009: 212.

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(172)	mijaŋ	a <sup>2</sup> -naŋ <sup>2</sup>	*(a-)m-jaŋ	BE SWEET		
(223)	jim	a <sup>2</sup> -jəm <sup>2</sup>	*(a-)jəm	FLY / FLOW	*byam	FLY (v.)
(224)	mijim	məjim (Clark: MEIM)	*m-jəm	CONCEAL		
(225)	mijip	mə <sup>3</sup> jəp <sup>1</sup>	*m-jəp	RETURN, TURN BACK		
(226)	[a]-ji	i <sup>2</sup>	*(a-)ji	RICE BEER		
(227)	[a]-jim	jəm <sup>2</sup>	*(a-)jəm	VILLAGE		
(228)	mijim	mə <sup>2</sup> jim <sup>2</sup>	*m-jəm	LOVE (v.)		
(229)	[a]-jin	jən <sup>2</sup>	*(a-)jən	IRON		
(230)	jip	a <sup>3</sup> -jəp <sup>1</sup>	*(a-)jəp	SLEEP	*s-yip ≈ *s-yup	SLEEP
(231)	jük	a <sup>3</sup> -juk <sup>1</sup>	*(a-)juk	SELL		
(232)	[tə]-mijuŋ	tə <sup>2</sup> -mə <sup>2</sup> juŋ <sup>2</sup>	*t-m-juŋ	FINGER	*m-yuŋ	FINGER
(233)	[a]-juŋ	a <sup>1</sup> juŋ <sup>2</sup>	*a-juŋ	RIVER		
(234)	thijuŋ	tə <sup>2</sup> -juŋ <sup>2</sup>	*th-juŋ	CENTER, MIDDLE	*ts(y)u:ŋ	NAVEL / CENTER

Table 35: PAo \*j-

PAo \*j- descended largely from PTB \*hy-. In FLY (223), the PTB \*b- initial may have been reinterpreted as a prefix and subsequently lost. In an unexpected development, the PTB palatal affricate \*tsy- in NAVEL / CENTER (234) transformed into the PAo palatal approximant \*j-.

The correspondence of Mongsen j- with Chungli Ø in WAGES (221) has at least two possible explanations: Either the Chungli form was reduced and lost the j- (but contrast LUCK, FORTUNE [222]), or PAo WAGES contained \*hj-, which was lost in Chungli as expected but sporadically voiced here in Mongsen.

The development of PAo BE SWEET (172) was discussed in §2.5.1.

The prevalence of aspiration on the PAo dental prefix preceding PAo initial \*j- (in WAGES, LUCK, and CENTER) is an interesting phenomenon that warrants closer investigation.

Mongsen *ji-*, Chungli *zə-* < PAo *\*jəj-* < PTB *\*yəy-* ?

The following cognate pairs exhibit the reverse of the correspondence relationship used as the basis for reconstructing PAo *\*ɟ-* in §2.3.2:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(235)	[a]-jɨʔ	a <sup>3</sup> zəʔ <sup>1</sup>	*a-jəjʔ	BLOOD	*s-hywəy	BLOOD
(236)	[tə]-ji	tə <sup>2</sup> -zə <sup>2</sup>	*t-jəj	HORN OF ANIMAL		
(237)	[a]-ji	a <sup>3</sup> zə <sup>1</sup>	*a-jəj	DOG	*d-k <sup>w</sup> əy-n	DOG
(238)	jàk	a <sup>3</sup> -zək <sup>1</sup>	*(a-)?k	HIT, BEAT		

Table 36: PAo *\*jəj-*

With the aid of the PTB etyma, these forms can best be reconstructed at the Proto-Ao level as containing initial *\*j-* followed by the diphthong *\*-əj-*. PAo *\*j-* in this environment was fronted and spirantized to *z-* in Chungli, but preserved as *j-* in Mongsen. The *\*-əj-* nuclei then developed regularly as *\*-ə-* in Chungli and *\*-i-* in Mongsen.

The means by which PTB *\*k<sup>w</sup>-* became PAo *\*j-* in DOG (237) is unclear, while the medial bilabial glide and initial *\*h-* in PTB BLOOD (235) were somehow lost, yielding *\*\*yəy*.

The cognate set in (238) HIT, BEAT also shows Mongsen *j-* : Chungli *z-*, but is not easily reconstructible with a PAo *\*-əj-* nucleus.

### 2.6.3. PAo *\*(h)ɻ-*

The Proto-Ao inventory can be reconstructed with both voiced and voiceless rhotic liquids.

Mongsen *hɻ-*, Chungli *ɻ-* < PAo *\*hɻ-* < PTB ?

The correspondence of Mongsen *hɻ-* with Chungli *ɻ-* supports PAo *\*hɻ-*, which has no clear PTB source:

<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>	<i>PTB</i>
(239) ahɿək	a <sup>3</sup> ɿək <sup>1</sup> / a <sup>3</sup> rək <sup>1</sup>	*a-hɿək ?	CHOKER / DROWN
(240) hɿə	ɿ <sup>2</sup>	*(a-)hɿə	PERFORATE / SEW
(241) jimhɿà ‘influenza’ hɿamən ‘malaria’	jəm <sup>3</sup> ɿà <sup>1</sup> ‘influenza’ ɿà <sup>1</sup> mən <sup>1</sup> ‘malaria’	*hɿa	DISEASE
(242) hlutsə	a <sup>1</sup> ɿ <sup>2</sup> tsə <sup>2</sup>	*(a-)hɿu-tsə ?	NIT
			*s-row EGG / NIT

Table 37: PAo \*hɿ-

The Mangmetong Mongsen form for ‘drown’ (239) is **ahɿək**, whose final rime matches that of Chungli **a<sup>3</sup>ɿək<sup>1</sup>** (from Temsunungsang 2009: 209). My Chungli consultant produces this as **a<sup>3</sup>ɿək<sup>1</sup>**, however, which is supported by Clark’s transcription of ARAK (Clark 1911: 110). The PAo form is therefore hypothesized to be **\*a-hɿək**, with sporadic reduction of the vowel in certain varieties. Mongsen otherwise has no particular phonotactic prohibition on [ɿək] sequences: cf. **ɿək** ‘bind w/ bamboo’ (245) and **ɿəksa?** ‘break’ (246), below.

Proto-Ao PERFORATE / SEW (240) has two possible reconstructions. The first is **\*a-əhɿ**, with word-final resyllabification yielding Mangmetong Mongsen **hɿə** (Coupe 2007: 55). The second candidate is **\*a-hɿə**, with the Chungli form **ɿ<sup>2</sup>** arising from loss of the word-final schwa. The latter proposal is the better-supported of the two, for the following reasons: Clark’s dictionary gives the Chungli form as ARER (1911: 116), while Temsunungsang has **a<sup>2</sup>ru<sup>2</sup>** ‘stitch’ (2009: 86). Looking outside Proto-Ao, Marrison gives ‘to sew’ in Lotha and Sangtam as **vü** and **ghü**, respectively (1967: 223), which suggests a proto-form with an open-syllable rime. My Chungli consultant’s production of **ɿ<sup>2</sup>** can therefore be considered a reduced form of /**əhɿ**/.

The only cognate set with an associated PTB etymon is NIT (242), which shows an unexpected PTB **\*s-r-** > Mongsen **\*hl-** development. Only one other pair contains this (**h**)**l** : **ɿ** correspondence, namely Mongsen **lanpən** : Chungli **lan<sup>2</sup>pən<sup>2</sup>** ‘whole’.

*Mongsen* ɿ-, *Chungli* ɿ- < *PAo* \*ɿ- < *PTB* \*r-, \*l-

PAo \*ɿ-, which was preserved in Mongsen and Chungli, descended from instances of PTB \*r- and \*l-:

<i>Mongsen</i>		<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(243)	tə̀à	tə̀³.ɿa¹	*t-ɿa	LITTLE (BIT)		
(244)	ɿà	a³.ɿu¹	*(a-)ɿa ?	COME	*la-y	COME / ARRIVE
					*la ɰ *ra	COME†
(245)	ɿàk	a-ɿak (Clark: A-RAK)	*(a-)ɿak	BIND (W/ BAMBOO)	*grak	CORD / TIE / BIND
(246)	ɿàksaʔ	ɿak³-saʔ¹	*ɿak-saʔ	BREAK		
(247)	mə̀ɿaŋ	mə̀².ɿaŋ²	*m-ɿaŋ	BE HARD	*b-raŋ	STRENGTH†
(248)	mə̀ɿək	mə̀².ɿək²	*m-ɿək	CLEAN (v.)		
(249)	mə̀ɿəm	mə̀².ɿəm²	*m-ɿəm	BE RED		
(250)	[tə̀]-ɿəm	tə̀²-pə̀².ɿəm²	*t-p-ɿəm	WAIST	*g/s/b-ram	RIB
(251)	ɿəm ‘bury’ aɿəm ‘bear, withstand’	a²-ɿəm² ‘bury / forbear’	*(a-)ɿəm	BURY / FORBEAR		
(252)	mə̀ɿən ‘threaten’	mə̀³.ɿən³ ‘scold’	*m-ɿən	SCOLD, THREATEN		
(253)	[tə̀]-ɿət	tə̀²-ɿət²	*t-ɿət	BONE	*s/m/g-rus	BONE
(254)	pə̀ɿi	pə̀².ɿi²	*p-ɿi	BE ENOUGH		
(255)	phə̀ɿuk	pə̀³.ɿuk³	*ph-ɿuk	SOW, SCATTER		
(256)	tə̀ɿuk	tə̀².ɿuk²	*t-ɿuk	SIX	*d-ruk	SIX
(257)	[a]-ɿuŋ	ɿuŋ²	*(a-)ɿuŋ	BOAT	*m-loŋ	BOAT
(258)	ɿuŋ	a²-ɿuŋ²	*(a-)ɿuŋ	BURN	*ploŋ	BURN

Table 38: PAo \*ɿ-

The case of COME (244) is a peculiar one: Both Ao languages contain ɿ-, though HPTB reconstructs PTB \*la-y (HPTB: 165). The STEDT database, however, acknowledges allofamic variation between \*la and \*ra. In addition, the Mongsen and Chungli cognate pair exhibit a ɿa : ɿu correspondence (cf. Mongsen sə̀ɿàɿə : Chungli si².ɿu³.ɿu¹ ‘animal’ in [57]), which suggests a possible instance of PAo \*ɿ-, whose rounded and uvular quality might have triggered the \*-a > -u

change in Chungli. Lotha and Sangtam ‘to come’, which Marrison gives as **ro** in both languages (1967: 58), appear to share this development with Chungli.

Alternatively, Proto-Ao COME could be **\*(a-)ɿ-wa**, morphologically related by an **\*ɿ-** prefix to PAo **\*(a-)wa** GO (209) (> Mongsen **wa**, Chungli **a<sup>2</sup>-u<sup>2</sup>**). PAo **\*(a-)ɿ-wa** yielded Chungli **a<sup>3</sup>ɿu<sup>1</sup>** ‘come’ by the **\*wa > u** development, while the **\*ɿ-** prefix preempted the weak root-initial in Mongsen to yield **ɿà**: PAo **\*(a-)ɿ-wa > Chungli aɿu**, Mongsen **ɿa** ‘come’.

In PTB **\*grak** CORD / TIE / BIND (245) and **\*ploŋ** BURN (258), the initial consonant was likely reanalyzed as as prefix and then lost, leaving **\*r-** and **\*l-** as the PTB initials reflected in the PAo forms by **\*ɿ-**.

PAo **\*m-ɿaŋ** BE HARD (247) is presumably related to Proto-Northern-Naga **\*raŋ** HARD (French 1983: 501).

Chungli **tə<sup>2</sup>-pə<sup>2</sup>ɿəm<sup>2</sup>** ‘waist’ (perhaps originally from the **\*s-b-** prefix sequence in PTB RIB) suggests the reconstruction of a **\*p-** prefix in the Proto-Ao form (250), which was lost in Mongsen.

#### 2.6.4. PAo **\*(h)l-**

Three different correspondence sets give evidence for the reconstruction of the Proto-Ao lateral liquid series **\*(h)l-**.

*Mongsen (h)li-*, *Chungli zə-* < *PAo \*(h)ləj-* < *PTB \*ləy-*

As observed earlier (§2.5.1, §2.6.2), the Proto-Ao diphthong nucleus **\*-əj-** often affected the initial consonant. In Chungli, the development of PAo **\*(h)l-** paralleled that of **\*j-** (§2.6.2) by spirantizing to **z-** before **\*-əj-**. Table 39 lists the cognate pairs showing a correspondence between Mongsen **(h)li-** and Chungli **zə-**, reflecting PAo **\*(h)ləj-** (< PTB **\*ləy-**):

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(259)	[tə]-hli ‘vein’ hli ‘vine’	tə-zə (Clark: TEZV) ‘vein / vine’	<b>*(t)hləj</b>	VINE, VEIN		
(260)	[a]-hli	a <sup>1</sup> zə <sup>2</sup> -puŋ <sup>2</sup>	<b>*a-hləj</b>	FLEA	<b>*s-ləy</b>	FLEA
(261)	áhlik <sup>21</sup>	a <sup>3</sup> -zək <sup>1</sup>	<b>*a-hləjk</b>	NECKLACE		
(262)	muli	mu <sup>2</sup> zə <sup>2</sup>	<b>*muləj</b>	MEDICINE, DRUG	<b>*r-tsəy (?)</b>	MEDICINE
(263)	phəli	pə <sup>1</sup> zə <sup>2</sup>	<b>*ph-ləj</b>	FOUR	<b>*b-ləy</b>	FOUR

<sup>21</sup> This form comes from T. Temsunungsang (p.c., 19 October 2010).

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>
(264)	laŋli	laŋ <sup>2</sup> zə <sup>2</sup>	*laŋləj	RESPOND, REPLY	
(55)	mukhuli	mu <sup>2</sup> ku <sup>2</sup> zə <sup>2</sup>	*mukhuləj	SMOKE	
(265)	aliŋ	azəŋ (Clark: AZVŋG)	*a-ləjŋ	BASE, LOWER RANGE	
(266)	liŋ	azəŋ (Clark: AZVŋG)	*(a-)ləjŋ	PLANT (v.)	

Table 39: PAo \*(h)ləj-

Although the reflexes of the PTB prefixes in Ao are not fully understood, the voiceless initial in PAo \***a-hləj** FLEA may be due to devoicing by \***s-** in PTB \***s-ləy** (260).

With regards to the potential relationship between PTB \***r-tsəy** MEDICINE and PAo \***muləj** MEDICINE, DRUG (262), it is possible that a metathesized variant of the PTB root developed as follows: \*\***tsrəy** > \*\***srəy** > \*\***s-rəy** > \*\***ləy** (= **ləj**).<sup>22</sup>

*Mongsen hl-*, *Chungli l-* < PAo \***hl-** < PTB \***l-**, \***r-**

In other sets, Mongsen **hl-** corresponds to Chungli **l-**, reflecting PAo \***hl-** (< PTB \***r-**, \***l-**):

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>
(267)	hlà	a <sup>2</sup> -lu <sup>2</sup>	*(a-) <b>hla</b> ?	GO DOWN	
(268)	hláŋ	a <sup>3</sup> -laŋ <sup>1</sup>	*(a-) <b>hlaŋ</b>	BE LONG	*m-raŋ      HIGH / LONG
(269)	hli	a <sup>3</sup> li <sup>1</sup>	*(a-) <b>hli</b>	BUY	*r-ley ≈ *b-rey      BUY / BARTER
(270)	[a]-hlú	a <sup>3</sup> lu <sup>1</sup>	*a- <b>hlu</b>	FIELD	*low      FIELD
(271)	hluli	lu <sup>3</sup> li <sup>2</sup>	* <b>hluli</b> (?)	BEAN	

Table 40: PAo \*hl-

<sup>22</sup> Based on suggestions from Jim Matisoff (p.c., 18 May 2010).

Note that the Mongsen **-a** : Chungli **-u** vowel correspondence in GO DOWN (267) matches that in COME (244), suggesting that PAo GO DOWN could be reconstructed instead as **\*(a)hl-wa**, with the **\*hl-** prefix (somehow meaning ‘down’) preempting the root-initial in Mongsen: PAo **\*(a)hl-wa** > Chungli **a-lu**, Mongsen **hla** ‘go down’.

*Mongsen l-, Chungli l- < PAo \*l- < PTB \*l-, \*r-*

The third set of cognate pairs reflects PAo voiced **\*l-** (< PTB **\*l-**, **\*r-**):

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(272)	pəla	pə <sup>2</sup> la <sup>2</sup>	*p-la	BE HAPPY		
(273)	məla	mə <sup>2</sup> la <sup>2</sup>	*m-la	ALLOW, PERMIT		
(274)	laŋ	a <sup>2</sup> (-)laŋ <sup>2</sup>	*(a-)laŋ	CUT, HACK		
(275)	ləm	a <sup>2</sup> -ləm <sup>2</sup>	*(a-)ləm	BE WARM	*s-lum ≈ *lim	WARM / MAKE WARM
(276)	ləm-sa ‘distribute’	a <sup>2</sup> -ləm <sup>2</sup> ‘divide’	*(a-)ləm	DIVIDE, APPORTION	*b-rim	DISTRIBUTE
(277)	phələm	pə <sup>2</sup> ləm <sup>2</sup>	*ph-ləm	BE TIRED		
(278)	mələm	mələm (Clark: MELEM)	*m-ləm	BE THICK		
(279)	mələn	mə <sup>2</sup> lən <sup>2</sup>	*m-lən	EXCHANGE		
(280)	ləp	a <sup>3</sup> -ləp <sup>1</sup>	*(a-)ləp	CUT	*s-lep	SLICE / PARE OFF
(281)	[tə]-məli	tə <sup>2</sup> -mə <sup>2</sup> li <sup>2</sup>	*t-m-li	TONGUE	*m/s-lay ≈ *s-ley	TONGUE
(282)	li	a <sup>2</sup> -li <sup>2</sup>	*(a-)li	LIVE, BE, EXIST	*s-ri(y)-t	COPULA / BE
(283)	[a]-lí	a <sup>2</sup> li <sup>2</sup>	*a-li	GROUND, FLOOR	*m-ley	EARTH / GROUND
(284)	məlu	mu <sup>2</sup> lu <sup>2</sup>	*m-lu	BOIL (vt.)		
(285)	məluk	mu <sup>2</sup> luk <sup>2</sup>	*m-luk	BASKET		
(286)	luk	aluk (Clark: ALOK)	*(a-)luk	JOIN		
(287)	[tə]-kuluk	tu <sup>2</sup> -ku <sup>3</sup> luk <sup>1</sup>	*t-k-luk	BRAIN	*s/k-lwak	BRAIN <sup>†</sup>
(288)	[a]-luŋ	luŋ <sup>1</sup>	*(a-)luŋ	STONE, ROCK	*r-luŋ	STONE

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(289)	məluŋ	mu <sup>2</sup> luŋ <sup>2</sup>	*m-luŋ	BE WILLING		
(290)	[tə]-məluŋ-tʃaŋ	tə <sup>2</sup> -mu <sup>2</sup> luŋ <sup>2</sup> tʃaŋ <sup>2</sup>	*t-m-luŋ	HEART	*m-luŋ	MIND / HEART
(291)	luŋ	a <sup>2</sup> -luŋ <sup>2</sup>	*(a-)luŋ	ROLL, SPIN		
(292)	ləntuŋ	lən <sup>2</sup> tuŋ <sup>2</sup>	*ləntuŋ	DANGER, ACCIDENT		
(293)	litʃak	litʃak (Clark: LIJAK)	*litʃak	BOW	*d/s-ləy	BOW / SLINGSHOT
(294)	[tə]-phəla	tə <sup>2</sup> -pə <sup>2</sup> la <sup>2</sup>	*t-ph-la	NAVEL	*m/s-la(:)y	NAVEL

Table 41: PAo \*l-

PAo \*litʃak BOW (293) suggests a PTB form with the \*-ey rime instead of \*-əy. If PTB BOW / SLINGSHOT is indeed \*ləy, the expected Proto-Ao reflex is \*ləjtʃak, which should have become Mongsen \*\*litʃak and Chungli \*\*zəjtʃak. It is possible, therefore, that Chungli litʃak has been borrowed from Mongsen.

The morpheme tʃaŋ in both Mongsen and Chungli ‘heart’ (290) means ‘seed’ (see [99]).

## 2.7. Laryngeals

One laryngeal phoneme may be reconstructed for Proto-Ao: the glottal fricative \*h-:

### 2.7.1. PAo \*h-

*Mongsen h-*, *Chungli Ø-* < PAo \*h- < PTB \*h-

Syllables with Mongsen initial **h-** correspond to Chungli onset-less syllables, revealing that PAo \*h- was preserved in Mongsen but lost in Chungli:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>	<i>PTB</i>
(295)	— <u>həmət</u> ‘hold’ <u>həmsi</u> ‘use’	am <sup>31</sup> ‘hold’ <u>am-ət</u> (Clark: AM-ET) ‘grasp, cling’ <u>am<sup>32</sup>-si<sup>2</sup></u> ‘use’	* <b>(a-)həm</b> HOLD	
(296)	hən ‘carry’ <u>hən-uk</u> ‘put into’ <u>həntʃuk</u> ‘throw away’	— ə <sup>3</sup> nuk <sup>1</sup> ‘put in’ ən <sup>2</sup> tuk <sup>2</sup> ‘throw away’	* <b>hən</b> BY HAND / CARRY	
(297)	[a]-hən ‘chicken’ hən-tsə ‘egg’	an <sup>2</sup> ‘chicken’ ən <sup>2</sup> -tsə <sup>2</sup> ‘egg’	* <b>a-hən</b> CHICKEN	* <b>har</b> FOWL / CHICKEN
(298)	səj ‘cross over, pass’ hì? ‘pass by’	səi <sup>31</sup> ‘pass’ —	* <b>(s-)hi(?)</b> PASS	* <b>s-ley</b> PASS / EXCEED

Table 42: PAo \*h-

For HOLD (295), Proto-Ao \***(a-)həm** lost initial \***h-** to become Chungli \*\***a-əm** > **am**. It is interesting that PAo \***(a-)həm** HOLD and \***hən** BY HAND / CARRY (296) both involve an action done with the hand and differ only in the final consonant, revealing a possible morphological relationship.

CHICKEN (297) shows that PAo \***h-** descended from PTB \***h-** (and PTB \***-a(:)r** > PAo \***-ən**). The Mongsen and Chungli forms for ‘egg’ are both compounds of roots meaning CHICKEN and EGG (see [132]). The Proto-Ao nominal \***a-** prefix was apparently not present in compounds (hence, **-ən** instead of **-an** in Chungli **ən<sup>2</sup>-tsə<sup>2</sup>** ‘egg’).

The very-tentative analysis proposed here for PASS (298) is based on the hypothesis that Mongsen **səj** ‘cross over, pass’ and **hì?** ‘pass by’ were morphologically-related at the Proto-Ao level, descending originally from PTB \***s-ley** PASS / EXCEED. PTB \***s-ley** may have developed as follows: \***s-ley** > \*\***s-hley** > \***s-hey** > PAo \***s-hi** (probably pronounced as [**səhi**]). A prefix-less variant then descended into Mongsen as **hì?**, while the prefixed variant was reduced in both languages to [**səi**]. Alternatively, it may simply be the case that the Proto-Ao form was \***səi**, with Mongsen **hì?** descending from a different PAo etymon.

## 2.8. Clusters

The Proto-Ao lexicon appears to have contained some words with initial clusters involving the medial glides *\*-w-* and *\*-j-*.

### 2.8.1. PAo *\*p(h)w-*

Some Proto-Ao words contained clusters of the (un)aspirated bilabial stop *\*p(h)-* and medial bilabial glide *\*-w-*.

Mongsen *p(h)a-*, Chungli *pu-* < PAo *\*p(h)wa-* < PTB *\*p<sup>w</sup>a*, *\*p-wa*

Table 43 contains cognate pairs illustrating a correspondence between Chungli *pu-* and Mongsen *pa-* & *pha-*, supporting the reconstruction of PAo *\*pwa-* & *\*phwa-*:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(299)	[tə]-paʔ	tə <sup>2</sup> -puʔ <sup>2</sup>	*t- <b>pwa</b> ʔ	FATHER	*p <sup>w</sup> a	MAN / FATHER
(300)	pasi	pu <sup>2</sup> si <sup>2</sup>	* <b>pwa</b> -ʃi	SEARCH FOR	*pa	SEARCH FOR / SEEK
(301)	tsə-pàʔ	tsə <sup>3</sup> -puʔ <sup>1</sup>	*tsə- <b>pwa</b> ʔ	WELL, POND		
(302)	[tə]-məpha ‘foot, dorsal aspect’	tə <sup>2</sup> -mu <sup>3</sup> pu <sup>1</sup> ‘part of foot’	*t-m- <b>phwa</b>	FOOT (PART)		
(303)	[tə]-pha	tə <sup>2</sup> -pu <sup>2</sup>	*t- <b>phwa</b>	TOOTH	*s-wa ≈ *p-wa	TOOTH <sup>†</sup>
(304)	phàʔ	a <sup>3</sup> -puʔ <sup>1</sup>	*(a-) <b>phwa</b> ʔ	CATCH		

Table 43: PAo *\*p(h)wa-*

One source of PAo *\*p(h)w-* is ‘extrusion’ of *\*p-*, represented as PTB *\*p<sup>w</sup>-* (cf. Matisoff 2000). PTB *\*pa* SEARCH FOR / SEEK (300) is supported by only a small number of forms in HPTB, some of which bear an *-o/-u* rime (HPTB: 24), suggesting a better reconstruction as PTB *\*p<sup>w</sup>a*.

The allofamic variation between the prefixes in PTB TOOTH (303) lends itself to the hypothesis that PAo *\*t-phwa* descended from a variant PTB form *\*s-p-wa*, with the *\*s-* prefix yielding aspirated PAo *\*ph-*.

## 2.8.2. PAo \*nj-

A single correspondence suggests the possibility of a Proto-Ao cluster consisting of \*n- and \*-j-.

*Mongsen na-*, *Chungli ni-* < PAo \*nja- < PTB \*s-na ?

The correspondence between Mongsen **na** and Chungli **ni** in ‘nose’ may be evidence for a PAo \*nj- cluster. The medial palatal glide raised the \*-a rime to -i in Chungli before disappearing in both languages:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(305)	[tə]-naʔ	tə <sup>2</sup> niʔ <sup>2</sup>	*t-njaʔ	NOSE	*s-na	NOSE

Table 44: PAo \*nj-

If this hypothesis is correct, PTB \*s-na > PAo \*t-njaʔ provides a parallel to Lepcha, in which the PTB \*s- prefix yielded a secondary palatal infix after the root-initial (Benedict 1943, HPTB: 101).

## 2.8.3. PAo \*lj-

*Mongsen l-*, *Chungli n-* < PAo \*lj- < PTB \*ly-

A peculiar correspondence between Mongsen **l-** and Chungli **n-** may be accounted for on the basis of evidence from PTB, which suggests that these segments descended from an original PTB \*ly- cluster that was preserved in Proto-Ao (= \*lj-). PAo \*lj- then became Mongsen **l-** but Chungli **n-**:

	<i>Mongsen</i>	<i>Chungli</i>	<i>Proto-Ao</i>		<i>PTB</i>	
(306)	[tə]-liŋla	tə <sup>2</sup> -nəŋ <sup>3</sup> la <sup>1</sup>	*t-ljiŋla	MARROW	*r-kliŋ ≈ *r-kl(y)aŋ	MARROW / BRAIN
(307)	məlak	mə <sup>2</sup> nak <sup>2</sup>	*m-ljak	LICK	*m/s-lyak	LICK / TONGUE

Table 45: PAo \*lj-

The initial \***k-** in PTB MARROW / BRAIN (306) was presumably reanalyzed as a prefix and subsequently lost, leaving \***lyan̥**, which descended into PAo with a raised rime as \***ljɪŋ** (full form: PAo \***t-ljɪŋla**). PAo \***-iŋ** then became Mongsen **-iŋ** and Chungli **-əŋ** according to their regular sound changes.

Given the lack of widespread support for this cluster reconstruction, it is also possible that these forms resulted from a sporadic process of **l ~ n** interchange. Temsunungsang records ‘lick’ in some unknown variety of Mongsen as containing **n** instead of **l** (Temsunungsang 2009: 211). Moreover, at least one cognate pair exists in which the correspondence is reversed, with Mongsen **n** and Chungli **l**: Mongsen **mənət** ‘water leech’ vs. Chungli **mələt** (Clark: MELET) ‘horse leech’, originally from PTB \***m-li:t** HORSE LEECH. These facts indicate that the **l : n** correspondence in Ao may need to be explained by more than a simple PAo \***lj-** cluster.

### 3. CONCLUSION

This section summarizes and discusses the sound changes that took place in the initials from Proto-Tibeto-Burman to Proto-Ao, and from Proto-Ao to Mongsen & Chungli. A chart of these changes can be found in the Appendix.

#### 3.1. PTB > PAo

The PTB series of voiced and voiceless initial stops (bilabial, dental, and velar) merged and descended into Proto-Ao as unaspirated stops, with the aspirated PAo stops arising from some interaction with PTB prefixes that is not yet fully understood.

The PTB dental & palatal voiceless sibilants descended unchanged in Proto-Ao, as did the voiceless glottal fricative.

Some mixture of the PTB dental and palatal affricates \***ts(y)-** and \***dz(y)-** yielded the four PAo affricates \***ts(h)-** and \***tʃ(h)-**.

The PTB nasal stops (bilabial, dental, and velar) descended unchanged into Proto-Ao, again with prefixal-interaction possibly yielding the voiceless series. One example of PAo \***hŋ-** appears to have come from the velar-prefixed dental/alveolar nasal \***g-n-**.

PTB \***r-** and \***l-** serve as the sources of the Proto-Ao voiced & voiceless liquids, having been exchanged with one another in some instances. The PTB initial glides \***w-** and \***j-** became the Proto-Ao initial glides, with no substitution like that observed for the liquids.

With regard to PTB clusters, some PTB consonant clusters involving \*r appear to be the source of PAo \*z-. Two consistent patterns of cluster development are that of PTB \*kl- > PAo \*ts- and PTB \*kr- > PAo \*tʃ(h)-, with \*-l- vs. \*-r- providing the original dental/alveolar vs. palato-alveolar contrast in the clusters. PTB extrusional \*p<sup>w</sup>- became the PAo cluster \*pwa-, and lost the \*p- after extrusion in at least one instance to yield the PAo voiceless bilabial glide \*hw-. PTB \*p-w- became PAo \*phw-, with the aspiration possibly arising by influence from a prefixed PTB \*s-. The PTB cluster \*ly- descended unchanged in Proto-Ao.

The phonological effect of the PTB \*s- prefix is still inconclusive. In some cases it appears to have yielded a Proto-Ao aspirated stop or voiceless nasal, though not every PTB root bearing an \*s- prefix follows this pattern. In one case, \*s- may be responsible for infixation of a secondary palatal glide, though further research is needed to come to a firm conclusion regarding the Proto-Ao reflexes of this prefix.

### 3.2. PAo > Mongsen, Chungli

All aspiration distinctions on Proto-Ao oral stops (bilabial, dental, and velar) were preserved in Mongsen but lost in Chungli. Chungli also merged PAo the voiceless nasals with the voiced nasals, a contrast that Mongsen preserved.

In both languages, the Proto-Ao voiceless sibilants \*ʃ- and \*s- merged to s-, though by different routes. The PAo voiced sibilant \*ʒ- merged with the palatal glide \*j- in Chungli and with the voiced dental fricative \*z- in Mongsen. PAo \*z- descended unchanged in both languages.

The (un)aspirated dental and palato-alveolar affricates contrasted phonemically in Proto-Ao, but have undergone a complicated merger to /tʃ/ in Chungli and appear to be in the process of merging to /tʃ(h)/ in Mongsen. The various changes involved in the mergers appear to be essentially moving both languages toward a phonological system in which underlying /tʃ/ is realized as [ts] before -ə, -əʔ, -ək, & -əŋ, but as [tʃ] everywhere else:

PAo unaspirated \*tʃ- descended unchanged in Mongsen & Chungli to yield /tʃ/. PAo aspirated \*tsh- descended unchanged in Mongsen as /tsh/, but lost the aspiration contrast in Chungli to merge with \*ts-, yielding [ts-] (all instances of which can be considered allophones of Chungli /tʃ/).

Where PAo \*ts- was followed by \*-i, it was palatalized to /tʃ/ in Chungli but remained /ts/ in Mongsen (with a vowel change from \*-i > -ə). Where PAo \*ts- was followed by \*-ak, it became Mongsen /tʃak/ but Chungli

[tsək] (phonemically /tʃək/). PAo \*ts- has elsewhere remained ts- in both languages (phonemically /tʃ/ in Chungli, though still produced as [ts]).

The Proto-Ao aspirated affricate \*tʃh- has merged with \*s- in Chungli. In Mongsen, \*tʃh- became /tsh/ before \*-ə and \*-ək, but has elsewhere remained /tʃh/.

If further research confirms that a palatal stop series existed in Proto-Ao, it would appear that \*c- and \*ch- became (un)aspirated palato-alveolar affricates in Mongsen but merged to t- in Chungli.

With regard to the Proto-Ao approximants (bilabial glide, palatal glide, rhotic liquid, and lateral liquid), Mongsen has preserved them with their original voicing contrasts. Chungli lost the voiceless palatal glide \*hj-, but otherwise merged the voiceless approximants with their voiced variants. The existence of two sets of Mongsen-Chungli correspondences involving the voiced bilabial glide (**wa** : **wa** and **wa** : **u**) suggest the possibility that two types of bilabial glides existed in Proto-Ao, though the details are unknown.

The Proto-Ao voiceless glottal fricative \*h- was preserved in Mongsen but lost in Chungli.

When a PAo initial consonant was followed by the \*-əj diphthong nucleus, various changes took place in Chungli. Original bilabial nasals palatalized to n-, and lateral liquids & palatal glides spirantized to z-. Mongsen, however, preserved the original initials in all these cases.

Finally, Mongsen lost the medial bilabial glide in PAo clusters of \*p(h)- and \*-w-, while in Chungli the glide combined with \*-a to yield a -u rime. PAo \*nj- is supported by only one cognate set, but appears to have merged with \*n- in both languages, raising \*-a to -i in Chungli. The PAo cluster \*lj- became Mongsen l- but Chungli n-.

### 3.3. Final Remarks

While many of the PTB > Proto-Ao sound changes are unclear, the development of the initials from Proto-Ao to Mongsen & Chungli reveals a very clear generalization: Mongsen tended to preserve original contrasts, while Chungli merged or lost them.<sup>23</sup> Also intriguing is the observation that both languages participate in some of the same mergers (\*ʃ- with \*s-, \*ts- with \*tʃ-, and \*tsh with \*tʃh-), but do so by different routes of development in their interaction with the rimes.

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<sup>23</sup> The conservativeness of Mongsen has also been observed in the development of the rimes.

Additional data from Chungli & Mongsen – as well as from extra-Ao languages such as Lotha, Sangtam, and Yimchungrü – is expected to aid in the refinement of the Proto-Ao reconstructions presented here.

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## APPENDIX: SOUND CHANGES

The following table summarizes the development of the initials from PTB > Proto-Ao > Mongsen & Chungli:

	<i>PTB</i>	<i>Proto-Ao</i>	<i>Mongsen</i>	<i>Chungli</i>
<i>stops:</i>	*b-, *p-	*p-	p-	p-
	*s-p-	*ph-	ph-	
	*d-, *t-	*t-	t-	t-
	?	*th-	th-	
	?	*c- (?)	tʃ-	
	?	*ch- (?)	tʃh-	
	*k-, *g-	*k- *kh-	k- kh-	k-
<i>sibilants:</i>	*s-	*s-	s-	s-
	*sy-	*ʃ-		
	*-r- clusters?	*z-	z-	z-
	?	*ʒ-		j-
<i>affricates:</i>	*dzy-, *tsy-, *kr-	*tʃ-	tʃ-	tʃ-
	*dzy-, *tsy-, *dz-, *ts-, *kr-	*tʃh-	tsh- before *-ə, *-ək tʃh- elsewhere	s-
	*ts-, *dz-, *tsy-, *kl-	*ts-	tʃ- before *-ak, *-aŋ ts- elsewhere	tʃ- before *-i tʃ- [ts-] elsewhere
	*s-r(y)- ?	*tsh-	tsh-	tʃ- [ts-]

	<i>PTB</i>	<i>Proto-Ao</i>	<i>Mongsen</i>	<i>Chungli</i>
<i>nasals:</i>	*m-	*m-	m-	n- before *-əj
	?	*hm-	hm-	m- elsewhere
	*n-	*n-	n-	n-
	*s-n- ?	*hn-	hn-	n-
	*ŋ-	*ŋ-	ŋ-	ŋ-
	*g-n-, *s-ŋ- ?	*hŋ-	hŋ-	ŋ-
<i>glides:</i>	*wa-	*wa-	wa-	u-
	*p <sup>w</sup> a ?	*hwa-	hwa-	wa-
	?	*Wa-	wa-	z- before *-əj j- elsewhere
	*y-	*j-	j-	∅
		*hj-	hj-	
<i>liquids:</i>	*r-, *l-	*ɹ-	ɹ-	ɹ-
	?	*hɹ-	hɹ-	
	*l-, *r-	*hl-	hl-	z- before *-əj l- elsewhere
		*l-	l-	
<i>laryngeals:</i>	*h-	*h-	h-	∅
<i>clusters:</i>	*p <sup>w</sup> a, *p-wa	*p(h)wa-	p(h)a-	pu-
	*s-na ?	*nja-	na-	ni-
	*ly-	*lj-	l-	n-

Table 46: PTB &gt; PAo &gt; Ao sound changes